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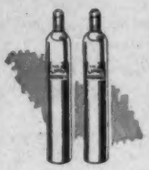
The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, SEPTEMBER 24, 1931 $6.00 a Year

University of Oklahoma General Library Norman, Oklahoma



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PRODUCING REFINING PIPELINE ENGINEERING MARKETING

VOL. 30. NO. 19. TULSA, OKLAHOMA, SEPTEMBER 24, 1931

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Stabilization of Production Effected

Highest production in 1930, week ending Feb. 22, average daily output 2,699,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

East Texas Will Be Held to 400,000 Bbls. Low Gasoline Prices Affect Crude Price Structure. May Open Oklahoma

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

Stabilization of crude oil production to approximately market requirements has finally been accomplished. State officials of Oklahoma, Kansas and Texas have agreed on the schedule of allowable production for these states and assurance has been given that East Texas will not be permitted to produced in excess of 400,000 bbls. daily.

Co-operation of the Federal Government in efforts to hold world production and imports in line with the curtailment program adopted in the United States is indicated as a result of conferences held in Washington this week. Attorney General Mitchell and other members of the President's cabinet are showing renewed interest in the petroleum situation and their attitude seems to be entirely sympathetic with the industry.

It is believed fields in Oklahoma shut in or curtailed by martial law will be permitted to reopen within the near future. The allowable production of Oklahoma is 546,000 bbls.

Weakness in gasoline prices is given as the reason for low crude oil prices. It is admitted refiners are losing money at present prices and that the gasoline price schedule is entirely out of line with conditions. When the question is asked why refiners do not increase their gasoline prices the reply is to the effect marginal contracts of many jobbers permit them to sell under the posted retail schedules of the major distributors in many areas.

The production branch of the industry has put its house in order and producers are entitled to higher prices. Conditions warrant a substantial increase and such increase should be made and should be followed by higher prices for gasoline. The industry always has had price cutters and probably always will. If they are forced to pay higher prices for crude they certainly must increase their prices for gasoline or their losses will force them out of business just so much more quickly.

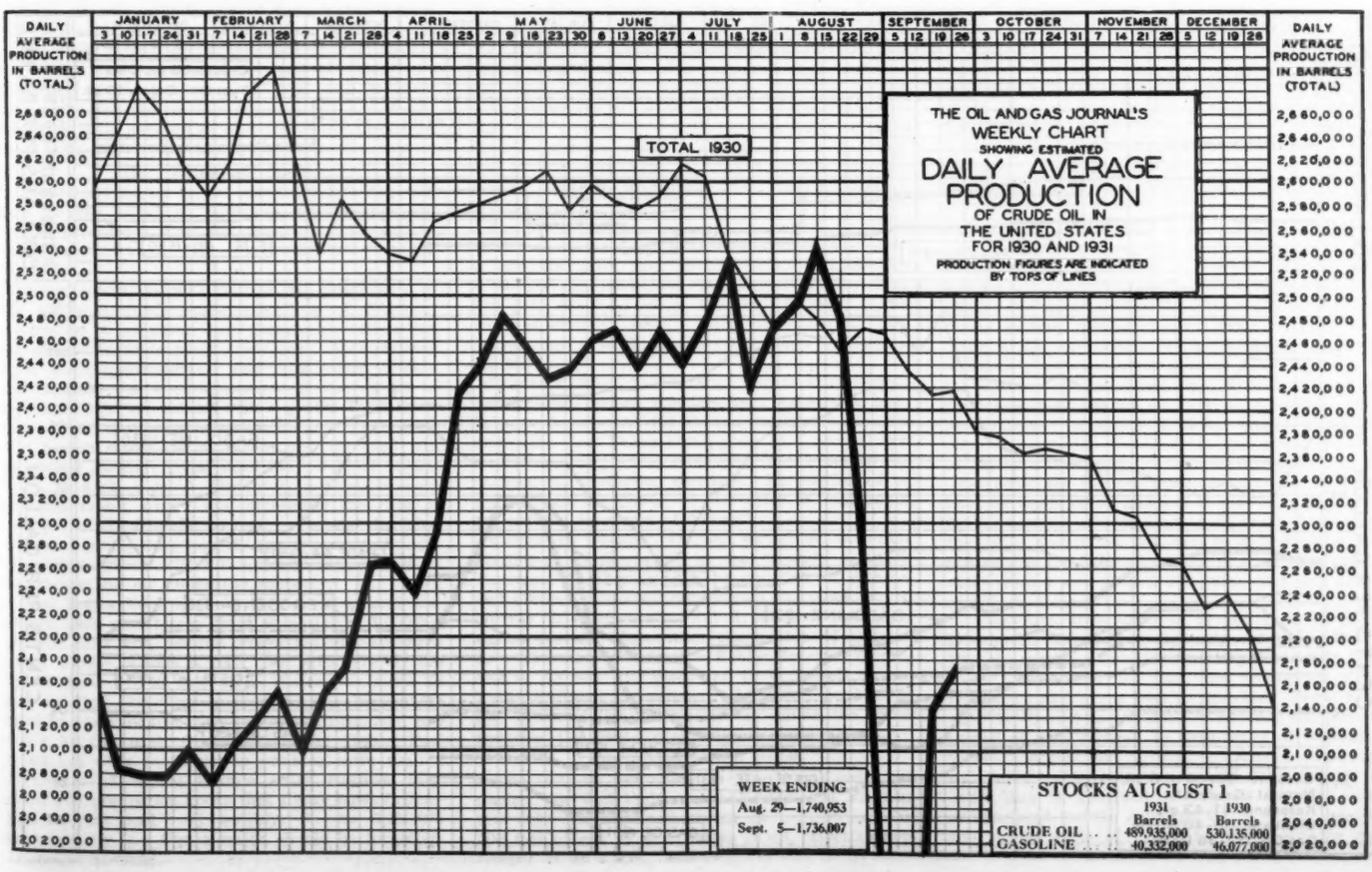
The general outlook is far more promising than it has been for a long time. Refiners should profit by the situation in the production branch of the industry and revise their price schedule upward.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended September 19 and a comparison with the previous week follows:

	Sept. 19	Sept. 12
Oklahoma—		
Oklahoma City	4,250	7,585
Seminole-St. Louis	56,710	53,410
Remainder of State	196,985	194,940
Total Oklahoma	257,945	255,935
East Texas—		
Kilgore	167,848	158,968
Lathrop	100,303	97,351
Joiner	151,274	141,452
Total East Texas	419,425	397,771
West Texas	204,496	206,074
North Central Texas	77,484	76,208
Texas Panhandle	65,529	59,139
East Central Texas	57,112	57,359
North Louisiana	29,715	29,880
Arkansas	38,045	38,095
Kansas	107,930	100,420
Total Mid-Continent area	1,257,681	1,220,881
Gulf Coast	144,446	143,587
Southwest Texas	61,953	61,522
Eastern	111,000	111,000
Rocky Mountain area	93,014	91,150
California—		
Santa Fe Springs	61,750	62,000
Long Beach	79,000	78,750
Playa Del Rey	21,000	20,500
Elwood	25,750	26,250
Kettleman Hills	65,750	61,500
Remainder of State	258,250	260,750
Total California	511,500	509,750
Total United States	2,179,594	2,137,890

→ Increase, 41,704 Bbls. Daily ←



Advance Oklahoma Neutral Oil Prices

Viscous Grades Increase From One-Half to One Cent a Gallon. Refinery Gasolines Continue to Decline

By C. O. Willson

The gasoline market in Oklahoma and other Mid-Continent areas continued to point downward the past week. All grades of refinery gasoline in Oklahoma were at least one-half cent lower than they were a week ago. Oklahoma U. S. Motor gasoline reached a low of 3 cents in sales to the trade the latter part of last week with a price range up to 3½ cents. Resale material was available from one-eighth to one-fourth cent less and in inland Texas sales to the trade were being made on that basis. Natural gasolines were not as weak as the refinery grades and prices were being maintained at last week's levels.

Prices on all grades of viscous neutral oils were advanced the past week, the first increase in the Mid-Continent market in over a year. The zero grade of 200, 3 color advanced to 10 cents with 9½ cents the prevailing price for the higher cold test. Some of the heavier grades were advanced as much as 1 cent a gallon. While trading is not as active as in the case of bright stocks, refiners believe that the higher prices which are more in line with the cost of production can be maintained.

There were no important changes in the remainder of the Oklahoma (Group 3) refined market list. Spot business was not active in fuels, a development for which the extremely warm weather in middle western states is held partially responsible. Kerosene prices are fractionally lower. The recent advances in bright stocks are being maintained and with a steady demand there are reports that additional advances will shortly materialize.

The weakness of the gasoline market has been disappointing to the sellers. Many of the trade believed that prices, after the material thrown on the market with the reopening of the East Texas fields the first of the month had been absorbed by the buyers, would stiffen. Many still believe that this development is just around the corner.

One refinery manager contends that little can be expected in refined market improvement until there are definite indications that the crude oil situation has been stabilized. The constant jockeying of the crude market over the past few months through military shut downs, voluntary curtailments and the like have left the refining and marketing branches so bewildered that they are at loss what to expect next. Under such conditions the inevitable result has been a weak refinery market reflecting the worst phases of the general oil situation. This pessimistic attitude is indicated in the fact that with the Seminole and Oklahoma City areas shut down, several of the larger refiners dependent on crude oil supplies from those fields, have been content to draw on crude oil storage which cost them far more than they are able to realize in present refinery operations. If these refiners had any confidence in the success of the efforts to stabilize crude oil prices at lower levels, it is pointed out, they would have been willing to post higher schedules and also purchase the gasoline thrown on the market at prices out of line with the prevailing crude oil market.

Since last week a new program of allowable production for the several states has been worked out which it is believed will keep the supply in line with the ready demand. Market observers are agreed that if this latest program can be made effective without some new plan making its appearance in the immediate future, it is probable the refinery market will adjust itself to the crude prices established. This will mean an improved gasoline market with probable price increases in some of the other refined products. Mid-Continent operators will agree that with gasoline selling around 3 cents most plants are operating at a loss.

Gasoline and Naphtha

Sellers had little to offer of an encouraging nature in regard to gasoline. Several refiners withdrew from the spot market last week when it appeared impossible to move material at any price. As usual, in a weak market there were a few sellers throughout the Mid-Continent who were willing to accept any offers from the buyers. The practice of moving gasoline to Chicago and other middle western points without a consignee continues, resulting in distress sales, some

(Continued on Page 124)

REFINED MARKET BAROMETER

Changes in refined markets during the past week were so mixed that no general trends were apparent. Gasoline prices in areas directly dependent on the Mid-Continent were generally lower but quotations on some domestic grades advanced in California last week while the East Coast market was also reported firm. Natural gasoline prices continued generally firm. No important changes were announced in the kerosene market. Some seasonal improvement was reported in the demand for all products used as fuels but prices at best were no more than holding their own. In the East, steam refined stocks were again advanced and in the Mid-Continent neutral oil prices were generally higher. Wax prices lower in East.

Mid-Continent—Refinery gasoline prices lower in all areas. Natural gasolines unchanged. Fair demand for low cold test fuels and prices unchanged. Cylinder stocks strong. Neutral oil prices advanced.

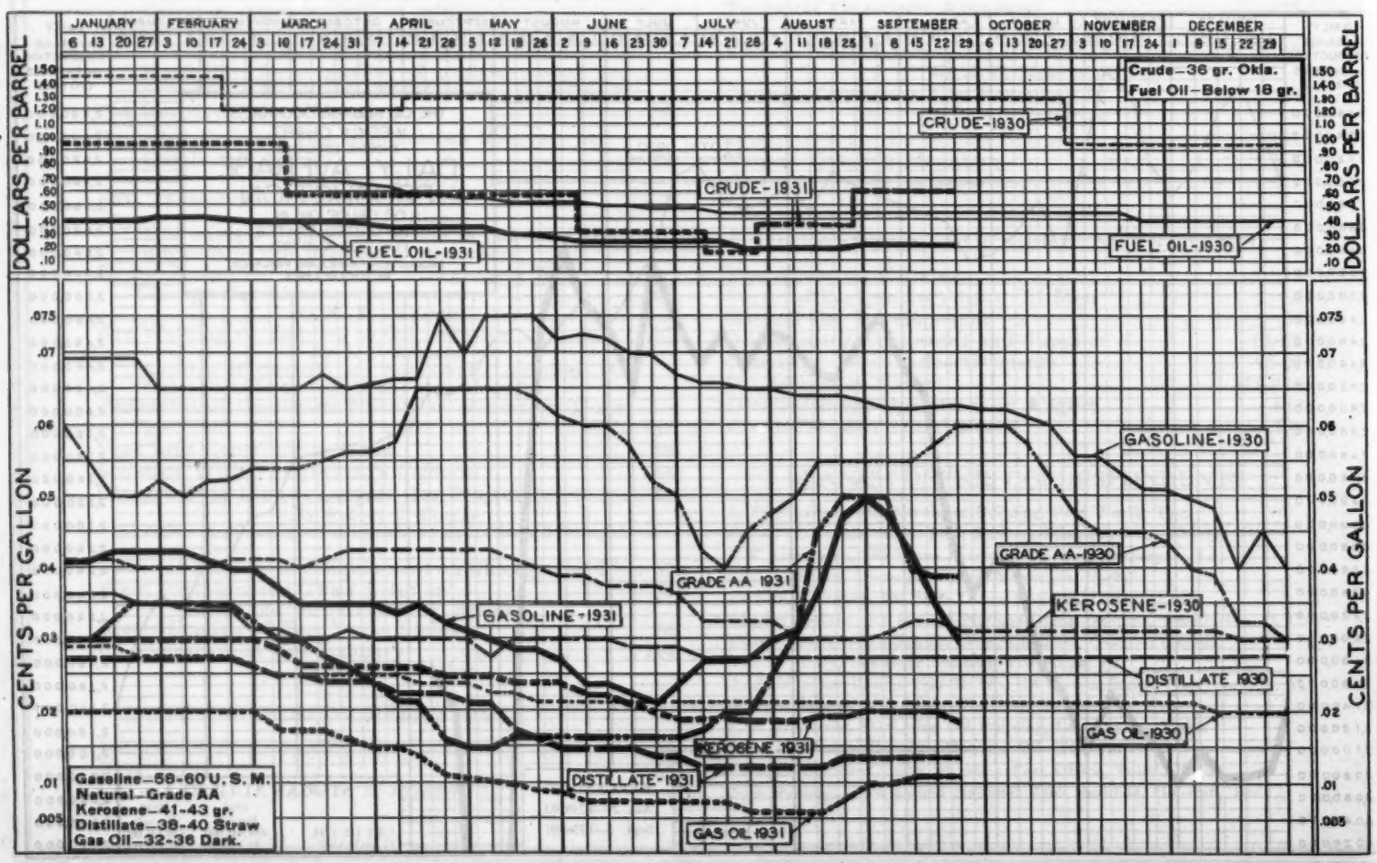
East Coast—Market generally steady. Less price cutting in gasoline sales. All grades of cylinder oils advanced. Wax demand slow and prices lower. Diesel oil steady. Greater demand for furnace oil. Kerosene more active.

Chicago—Gasoline prices reduced as sellers continue liberal offerings. Kerosene dull. Fuel oil and gas firm. Greater demand for furnace oil.

Pennsylvania—Some grades of gasoline reduced. Fair demand for kerosene. Cylinder stocks and neutrals firm.

Gulf Coast—Market generally weak. Fuel oil and gasoline prices lower.

California—Domestic grades of refinery gasoline advance. Natural gasolines unchanged.



Time Has Arrived to Raise Crude Prices

Stabilization of Production Removes Last Reason for Delay. Companies Now Planning for Future Requirements

By Andrew M. Rowley

There no longer exists any reason or even any excuse for delaying increases in prices for crude oil to an extent which will permit producers to operate their properties at a reasonable profit. The crude oil production situation has been stabilized and the industry now knows, for the first time in years, what output may be expected from the various sections of the country.

East Texas, the most recent menace to the general situation, is under control and production of that area will be held to 400,000 barrels daily or less. Assurance on this point has been given by Governor Ross S. Sterling of Texas and the petroleum industry as a whole realizes East Texas will not again flood the market with crude oil, regardless of price.

The plan of holding crude oil production in the United States to 2,376,000 barrels daily has been approved by the officials of Texas, Oklahoma and Kansas, the three States which control the situation in the Mid-Continent. California has put its house in order and no one fears a deluge of production from that area. It is conceded production in California will be maintained at about its present level.

Future Requirements

That the industry realizes crude oil production has been curbed definitely to market requirements or less than market requirements is indicated conclusively by the fact a number of companies now are looking to the future and already are making plans to protect their future requirements by procuring promising acreage which may be drilled as the occasion demands. Even officials who not more than a few weeks ago deprecated even any talk about drilling now admit it is good business for companies to prepare themselves for the time when they will need additional crude oil reserves.

There are two most important factors that assure the petroleum industry the present situation is stable. First is the fact present curbs on crude oil production are not dependent upon voluntary cooperation of the producers in any area or pool. Allowables for the various flush pools are determined by state authorities and orders are issued by these state authorities setting the limit of output.

The "Potential" Myth

The second factor is the throwing into the discard of the bugaboo "potential production." Potential production does not mean a thing and is the flimsiest myth that ever frightened a big industry.

Water conditions will control the production of the different flush pools regardless of potential production or anything else. Companies with a big investment in these pools know they must produce their wells conservatively and with every precaution against water encroachment if they hope to get back their investment with a profit. They know just as well that opening up the wells in such pools will hasten water encroachment and the pool will be ruined quickly. What does the potential output mean in such a case? Absolutely nothing because the one factor which will determine the rate of production is ultimate returns on capital invested and no company dare imperil its investment through operations which will kill quickly any chance of recovering the oil under the property.

The Hobbs Pool in New Mexico is a good example. This pool has a rated potential of 1,000,000 barrels daily and yet its production has averaged about 37,000 barrels a day. The structure in the Hobbs Pool is 140 feet high. Water has risen 70 feet on that structure in four months. The water level has only 70 feet more to rise until the field is a thing of the past. Operators in the Hobbs Pool could not even be forced to produce more than a maximum of 42,000 barrels daily because they know any production above that figure means ruination of the pool very quickly. So the 1,000,000 barrels daily is a figure which should be forgotten. It means nothing.

Despite testimony offered at the hearing in Austin, Tex., engineers apparently are agreed a production in excess of 400,000 barrels daily in East Texas will hasten water encroachment in the fields there. Production will be held within that limit to prevent this vast physical waste which would result from ruining the field by water.

Oklahoma City has a rated potential in excess of 8,000,000 barrels daily. Naturally no one ever expected production there would reach 8,000,000 barrels a day but the figure has been quoted frequently by those who "feared what might result." Companies with millions of dollars invested in Oklahoma City have made a careful survey of water conditions and engineers are convinced any production in excess of 200,000 barrels daily in Oklahoma City will ruin the field and prevent many companies from getting back even the money invested. Many engineers place the safe limit of production in Oklahoma City at 170,000 barrels daily.

The same condition prevails in Seminole, Van, Yates and other flush pools. Production limits are set by water encroachment and these limits will not be exceeded as the operators cannot afford to imperil their investments.

Industry in Good Position

The petroleum industry is in a better statistical position than it has been for years. Crude oil production so far this year is about 68,000,000 barrels less than during the similar period last year. Sixty-eight million barrels is a lot of crude. Crude oil stocks on August 1 were more than 40,000,000 barrels less than last year while gasoline stocks were nearly 6,000,000 barrels less. Under the plan of holding production in the United States to 2,376,000 barrels daily, 75,000 barrels daily would have to be supplied from storage. This with Oklahoma producing 546,000 barrels. With Oklahoma flush fields still shut in, that State is producing 285,000 barrels daily less than its allowable under the new plan, consequently the requirements for crude must be supplied by withdrawals of more than 350,000 barrels daily from storage.

Summarizing the situation crude oil production so far this year has been 68,000,000 barrels less than during the similar period last year; more than 40,000,000 barrels of crude and about 6,000,000 barrels of gasoline have been withdrawn from storage up to August 1; and the crude oil production plan agreed upon by officials of the Mid-Continent states will result in a withdrawal of 75,000 barrels daily from storage even after Oklahoma's flush fields are opened and the State is producing 546,000 barrels daily, 285,000 barrels daily more than it is producing now.

Price Situation Different

But when one views the price situation he gets an entirely different picture and one which is mighty hard to understand. One year ago the price

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Crude Production Now Stabilized

Effective Agreement Reached at Austin by Three Oil Producing States With Revision of East Texas Allowable

AUSTIN, Tex., Sept. 21.—Governors of Texas, Oklahoma and Kansas, acting through representatives, and the oil and gas conservation agencies of the three States entered a compact at Austin Friday to limit the States' oil output in conformity with a world conference held in Oklahoma City a week ago. This fixes Texas oil output at 902,000 bbls. daily; Oklahoma at 546,000 bbls., and Kansas at 110,000 bbls., for the rest of this year.

The Texas Railroad Commission issued an order cutting the East Texas Field back from 225 bbls. to 185 bbls. daily, and limiting to 500 feet the gas to be used in producing each barrel of oil. This will hold the field below 400,000 bbls. daily. The order is effective from 7 a.m., September 21, and follows one a week ago to reduce new drilling in the field.

Governor Ross S. Sterling issued a statement commending the oil compact year as having been "a good day's work for the oil industry." He declared the East Texas Field, scene of a martial law shutdown and gradual reopening, is the key to the national oil production situation. He reaffirmed he will use all the power of his office to "safeguard the natural resources of Texas."

Cullen F. Thomas, Dallas, served as Governor Sterling's representative in the tri-state compact. Thurman Hill represented the governor of Kansas, and Cicero I. Murray represented Governor W. H. Murray of Oklahoma. Paul A. Walker, chairman, signed for the corporation commission of Oklahoma; Thurman Hill for the Public Service Commission of Kansas, and Chairman C. V. Terrell for the Texas Railroad Commission. All three members of the Texas Railroad Commission signed the order reducing the East Texas allowable production.

Commission's New Order

The railroad commission's oil and gas order, reducing the well limit of the East Texas Field to 185 bbls. per day and fixing an oil-gas ratio of 500 feet of gas to each barrel of oil, effective September 21 at 7 a.m., follows:

"Whereas, the Railroad Commission of Texas on September 2, 1931, adopted an order promulgating rules and regulations for the prevention of physical waste of crude petroleum oil and natural gas in what is known as the East Texas Field, composed of Upshur, Smith, Rusk and Gregg Counties, Texas, and among other provisions of said order, adopted for that purpose was a limitation of production of each well in said field to 225 bbls. of oil daily; and

"Whereas, conditions are such that in order to safeguard against waste in said field it is necessary, under existing conditions, to further limit the production of said field, and while the commission is still of the opinion that the evidence was not sufficient to form the basis of an order definitely utilizing to the fullest extent the gas energy and hydrostatic pressures in the pool or reservoir, it is of the opinion and so finds that withdrawals of oil from said pool should be held within safe bounds by temporary methods until by proper and complete investigation the accurate and correct method of pressure control or correct gas-oil ratios may be established for the operation of said pool so as to hold its waste of oil and gas therein to a minimum. In furtherance of this finding at the present time, the daily production per well in said field should not exceed 185 bbls. of oil per day, and the gas-oil ratio should not exceed 500 cubic feet per barrel of oil.

"Therefore, it is ordered by the Railroad Commission of Texas that its order of September 2, 1931, be further amended so as to provide that after 7 a.m., September 21, 1931, the production of oil from each and every well in said East Texas Field shall be limited to 185 bbls. in any one day for the period of time covered by said order of September 2, 1931, or until the railroad commission shall have completed its investigation in said field or until the order may be amended or changed for good cause shown; and for the same period it is ordered that the gas-oil ratio of each and every well in said

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N. P. A. Discusses World Situation

Foreign Refining Expansion Taking Care of Larger Share of Demand Abroad. Closer Study of Statistics Urged

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

ATLANTIC CITY, N. J., Sept. 18.—Consideration of petroleum producing, refining and marketing problems on a world-wide, rather than on a national scale, and closer attention to statistics which might prove invaluable in avoiding wasteful overproduction, are essential for the proper guidance of the American petroleum industry in its producing and refining operations, speakers appearing before the thirtieth annual convention of the National Petroleum Association here this week emphasized. The meeting, which was held at the Hotel Traymore, was well attended, the registration being in excess of that for the 1930 convention, held at the same place.

E. M. Lyons, president of the association, throughout the three-day session stressed the importance of a thorough comprehension of the world picture in the formation of operating plants by American producers and refiners, and called for more light on the subject of foreign oil operations, his suggestion culminating in a resolution adopted at the closing session today providing for the publication by the association, in cooperation with the Department of Commerce, of monthly figures on foreign production and stocks.

Competition Abroad

C. J. Bauer of the Standard Oil Co. (New Jersey) presented a graphic picture of the rapid growth of refining facilities abroad, his data indicating that, barring any appreciable increase in foreign consumption in the relatively near future, the rest of the world will within the next few years be almost entirely independent of the United States as a supplier of both crude petroleum and products.

The steady decline of the United States as a factor in foreign markets was outlined in part by Mr. Bauer as follows:

"It was not so long ago that a new field in Venezuela, a 100,000-bbl. well in Iraq, or the five-year plan of the Soviets would have been of no more concern to the American oil man than a twister in Kansas to the resident of Philadelphia. But to those who have been keeping watch on the foreign situation it has become evident in the last five years that the world is not as dependent upon the United States for its supply of crude and products as it was in the previous five years.

"Foreign oil developments never seemed important to the American, beyond their geographical interest, until the latter part of 1929, when such countries as Rumania and Russia were reported as causing trouble in the American export market.

"Since Rumania started to produce crude—two years before the Drake well was drilled—the world has consumed 20,000,000,000 bbls. of oil. Of this amount the United States contributed 66 per cent, or about 13,500,000,000 bbls.; the remainder came from 26 other countries. Last year the United States' share was 63 per cent. Its highest percentage of world production was in 1923, 72 per cent. This year world production will approach 1,400,505,000 bbls., or 3,837,000 bbls. a day, of which the United States will contribute about 2,325,000 bbls. a day, or only 60.59 per cent.

Decline in Exports

"New sources of supply, economic conditions and legislation have played leading parts in changing the refining and producing map of the world. The effect of these changes has been a decided decline in exports of petroleum products from the United States.

"In the last decade foreign consumption has increased about 136 per cent to 1,585,000 bbls. a day, while exports from the United States have increased but 121 per cent. One would say that this is not a bad ratio.

"Based on the best figures available, consumption of crude and products outside of the United States will be approximately 1,680,000 bbls. a day during 1931. This is 1,000,000 bbls. more than the daily consumption of 11 years ago, or an increase of about 150 per cent. United

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NEED FOR MORE DATA ON WORLD SITUATION

The principal resolutions adopted at the closing session of the National Petroleum Association dealt with the need for increased data on world production and stocks of crude oil, and more definite information on the statistical position of various grades of lubricating oils. These resolutions, presented by O. P. Keeney, chairman of the resolutions committee, follow:

"Whereas it has been considered by the Board of Trustees of the National Petroleum Association that there is a great need in the petroleum industry for additional statistics of wider scope, be it resolved that the association undertake, in co-operation with the Department of Commerce of the federal Government, which co-operation has been assured, the regular monthly publication of statistics of crude production and stocks of petroleum in all countries outside the United States, in order to give to the entire industry of the world a composite picture of the trend of current operations of the world-wide petroleum industry.

"Whereas we have been impressed with the great need for more comprehensive information in regard to production and consumption and the pertinent facts in regard to lubricants, be it resolved that this meeting requests the board of trustees to carefully consider this problem and every possible way to help set in motion through the best machinery that is in existence or can be set up the collecting and collating of statistics on lubricants."

World Oil Curtailment Plan Is Filed

Three-State Committee Presents It to Secretary of Commerce Lamont, Who Refers It to Attorney General Mitchell

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Sept. 22.—A committee representing the governors of Texas, Oklahoma and Kansas appeared before Secretary of Commerce Lamont Monday and asked his co-operation in securing an agreement among oil-producing nations for proration of production by each of them based on their oil production of 1928 which was declared to be the most representative recent year of the oil industry.

The committee also asked his co-operation to have the large oil importing companies, Standard Oil Co. of New Jersey, the Shell Petroleum Corp., Standard Oil Co. of Indiana, Pan American Petroleum Co. and Gulf Oil Corp., agree to prorate their imports to the same extent that domestic production has been prorated or to the extent of one-third of the amount that was brought into the United States in 1928. They claimed that the Mid-Continent states could produce three times the amount of oil that is now being brought to the surface.

"As long as we are willing to curtail to that extent we prefer that these importing companies shall curtail their output at the point of production," they represented.

The committee wanted curtailment of foreign production as well as curtailment of imports, because if foreign production is kept at the present level and sold in the foreign market, curtailing the exportation of American oil, the domestic industry would still suffer by having one of its outlets for export cut off. They also presented the curtailment program proposed by the oil stabilization conference at Oklahoma City and approved at the Austin, Tex., meeting by which Texas is limited to 902,000 bbls., Oklahoma to 546,000 bbls. and Kansas to 110,000 bbls., and asked the secretary's co-operation in making their plans successful.

The committee did not bring up the subject of a tariff or an embargo on oil.

Up to Attorney General

At the conclusion of the conference, which was not open to the public and lasted about an hour, Secretary Lamont told the committee he would look into the legal aspects of the suggestions presented to him with a view to co-operation with the oil men. He will request an opinion on the entire subject from Attorney General Mitchell so that it will be some days before he will express an opinion on the plan for proration and curtailment.

Cicero I. Murray was not with the committee as his duties in connection with the enforcement of martial law kept him in Oklahoma.

Thurman Hill, chairman of the Public Service Commission of Kansas, acted as chairman and spokesman. Texas was represented by Cullen F. Thomas, the Railroad Commission of Texas was represented by C. V. Terrell, and the Corporation Commission of Oklahoma by Paul A. Walker. Others included in the committee were William N. Davis, president of the Mid-Continent Oil and Gas Association; Wirt Franklin, president of the Independent Petroleum Association of America, and Capt. J. F. Lucey of Texas.

Invited to attend the meeting were Scott Turner, director of the Bureau of Mines; E. B. Swanson, chief economist, Bureau of Mines, and Dr. John W. Frey, chief of the petroleum section, minerals division, Department of Commerce, and Northcutt Ely, executive secretary for Secretary Wilbur, chairman of the Federal Oil Conservation Board, who attended the Oklahoma City oil conference as a federal observer.

Committee's Figures

The committee was prepared to submit its plans in great detail backed by extended compilations of oil production and consumption of the world. Tentative figures presented showed contemplated daily average oil supply of the world for 1932 of 4,153,000 bbls. located in five world districts as follows: First, United States, 2,379,000 bbls., Canada 5,000 bbls.; second, South America and Mexico, 594,000 bbls.; third, Europe, 108,000 bbls.; fourth, Orient, 271,000 bbls.; fifth, Russia, 572,000 bbls.

Tentative restrictions sought for the United States were: Texas, 900,000 bbls.; Oklahoma, 546,000 bbls.; Kansas, 110,000 bbls.; California, 500,000 bbls.; New Mexico, 50,000 bbls.; Louisiana-Arkansas, 110,000 bbls.; Rocky Mountain fields, 52,000 bbls., and eastern states, 108,000 bbls. These figures given for the Louisiana-Arkansas district and eastern states are for the full amount of their production, there being no effort to prorate their production.

The estimated proposed pro rata daily oil production of the world, including the United States, suggested by the committee, as stated by Chairman Hill, follows: 1931, 3,920,123 bbls.; 1932, 4,153,005 bbls.; 1933, 4,372,603 bbls.; 1934, 4,591,781 bbls.

Of these amounts the proposed pro rata production of the United States would be: 1931, 3,295,000 bbls.; 1932, 2,407,527 bbls.; 1933, 2,479,453 bbls.; 1934, 2,555,449 bbls.

These estimates are based on probable world demand for oil based on increasing consumption in past years.

The Russian production under this plan contemplates 374,890 bbls. as the total of 1930 with estimates for 1931 of 474,890 bbls.; for 1932, 572,133 bbls.; for 1933, 673,395 bbls., and for 1934, 773,088 bbls.

Difficulty Foreseen

Just how the committee will undertake to bring about a world conference for the proration of oil production is not now definitely determined. If the large world producing companies come into the plan, it is said the whole arrangement might be promptly effected by a meeting in this country. The possibility of any plan for bringing about a world conference through the instrumentality of the state department by governmental agency is fraught with danger of great delay and questionable legal authority.

How Russia could be brought into the plan is another problem on which Chair-

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Innovations Effect Economies on The Texas Company's New Pipe Line

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By Neil Williams

HOUSTON, Tex., Sept. 21.—When, just a month and a half ago, it was decided that the Texas Pipe Line Co. should lay a complete new trunk line from East Texas to the Gulf two objectives were sought, first, that the system be put in operation within the quickest possible time, and, second, that maximum capacity and efficiency be provided for a minimum of investment.

Today, the line is running oil, a total of 173 miles of 12-inch pipe being laid within a period of less than 30 days from the time first actual work was started and within 44 days from the date the project was first determined upon and orders for material and equipment placed. As to the second objective, a number of innovations in pipe line installation to be mentioned later attest to the economies effected.

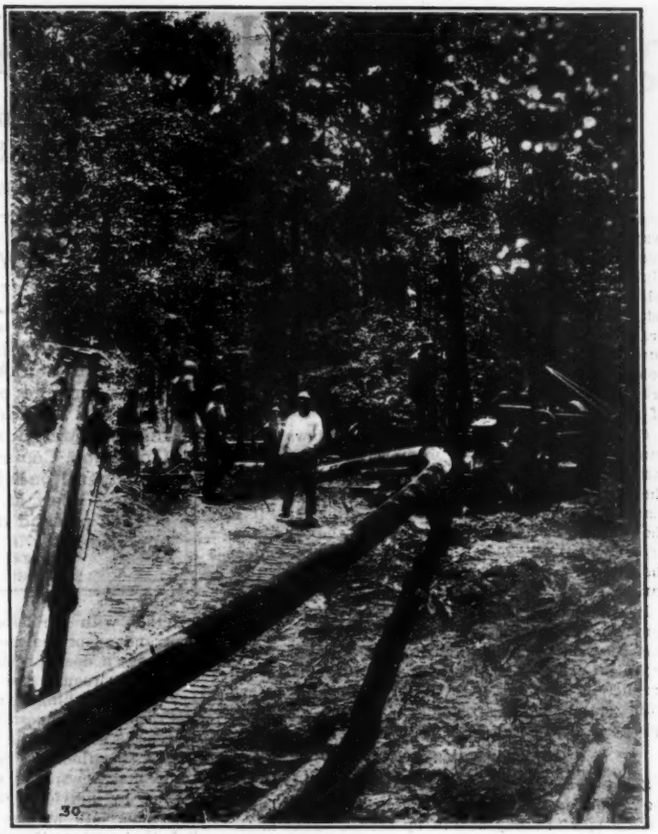
Laying of the line has been entirely in charge of the Texas Pipe Line Co. although the Doherty interests and possibly the Tidal Oil Co. will be joint owners. The East Texas terminus of the system is at Nettleton (Camp Switch), adjacent to tank farms of the Doherty interests and also the Tidal Oil Co., Gregg County. From there the line extends southward through the field and in nearly as direct line as possible to Douglass Station on the Texas Pipe Line Co.'s own line to the coast, and thence to Sour Lake on the latter's Dallas-Humble-Port Arthur trunk.

At Sour Lake, the new line was tied in Saturday, September 19, with the Humble-Port Arthur trunk, through which the East Texas oil will be run temporarily pending completion of a direct 12-inch line from Sour Lake to Port Arthur. The latter, a part of the Texas-Doherty project totalling 208 miles, is a section of approximately 35 miles, laying of which has been delayed because of rice lands, through which it passes, being under water at this time of year. However, all pipe on that section has been strung, welding and laying is under way and it will be completed within 10 days at most. With oil through the main part of the new trunk diverted at Sour Lake through the Texas Pipe Line Co.'s trunk there is no need of hurry on the 35-mile section.

* * * *

Eight Stations on Line

Eight stations have been provided for the system, these being, in order, Nettleton, Munro, Gilstrap, Rieber, Douglass, Diboll, Warren, Sour Lake. Each is Diesel powered, embodying the ideas in equipment and principle of operation, which recently were adopted in new stations of the Texas Pipe Line Co.'s own line. All station work has not as yet been completed but sufficient equipment already is in to permit operation of the line. Three of the stations, Rieber, Douglass and Sour Lake are stations on the Texas Pipe Line Co.'s own line and this equipment is being made use of. Additional equipment, however, is being added for the new line and the two lines will be operated entirely separate.



A pretty bend made on Texas-Empire Pipe Line Co.'s new 12-inch line from East Texas to Port Arthur.

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The speed with which the new line has been laid and put in operation has set new records. As previously stated, laying of the line was not definitely determined upon until August 7 and no bids were received nor orders placed before that date. First pipe was being received on the ground August 18, or 12 days later; welding was started on August 21, and the line was completed and tied in at Sour Lake September 19. The additional 35 miles now being laid could have been completed within that time also but not being needed it was not pushed.

Fast Time Made

This record is typical of the way in which modern pipe liners do things in a hurry and is representative of East Texas with its action and almost overnight growth. It has turned out that much speed was unnecessary due to the shut down of production, present curtailment and insufficient oil to fill more than 50 per cent of the total trunk line outlet capacity of the field. However, at the time the project was conceived and work

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Making bends on Texas-Empire Pipe Line Co.'s new line.

Welder at work on Texas-Empire Pipe Line Co.'s new line.

Lawyers Hear of Industry's Problems

Co-operaton Between Engineering and Legal Professions Urged. Principles to Stabilize Oil Business Outlined

By Earl Oliver*

For many years petroleum engineers have studied ways and means to eliminate the waste and fluctuations that characterize the oil industry in the United States. They have evolved methods calculated to accomplish those results, but conflict with existing laws on oil and gas have delayed their general adoption. As a consequence the laws of nature and economics have been ignored in the development of oil fields, resulting in an economic crisis in the oil industry that now demands a change of methods.

One of your officials has said: "The laws of nature are unchanging and unchangeable. They are inexorable. The engineer should discover them and the lawyer must then find means of adjusting human relationships to them." He continued: "It is the function of the engineer to outline the conditions under which oil fields should be developed and of the lawyer to determine the method by which that can be legally accomplished."

Proceeding on that theory, I have appeared before you for the purpose of urging closer co-operation between your body and the various engineering organizations that are making special studies of oil production problems. From an engineering viewpoint, stabilizing the petroleum industry would not appear to be an especially difficult problem.

Unit Operation a Remedy

Some two years ago the petroleum division of the American Institute of Mining Engineers organized a special study of unit operation. That method of handling oil pools has been urged as the remedy that would save the United States petroleum industry from the crisis that even then loomed as more than a small cloud on the horizon. Today it is only one of several remedies vigorously advocated.

Unit operation, proration, interstate compacts to determine and apportion market outlet, constructive marketing and regulation of imports, all have their earnest proponents, but the advocates of each have been disposed to look with indifference on the other respective proposals, with the result that none has had united support. Meanwhile the industry has drifted rapidly towards a serious crisis, the imminence of which in itself may bring the solution. The gravity of the situation tends to force study of the merits of proposals that a short time previously were brushed aside as impractical; and to the surprise of most of us we now find merit where previously we thought none existed.

Irrespective of what might have been the result, had any single proposal been adopted years ago, it is now apparent that under present conditions no one of the remedies mentioned standing alone would be sufficient. On the other hand, it is becoming evident that a well-balanced program comprising several of them might save the United States petroleum industry; also that some such comprehensive program might be necessary to save it.

Other Proposed Remedies

Unit operation has the unqualified support of all engineers. Proration is nowhere accepted as a satisfactory permanent solution but it is considered by all informed students of the industry as a necessary temporary expedient. Interstate compacts and constructive marketing programs will stand or fall on the form they take and the extent to which they are generally understood, while regulation of imports will probably remain a controversial subject. Certain of these proposed remedies, like unit operation and proration, must have the joint study of lawyers and engineers, or their application and operation will be so unsatisfactory as to cause them to be considered failures.

Unfortunately, also, proration and unit operation are not a type of problem that a small number of representatives of the two professions can work out together with the hope that the industry will accept and adopt the method devised, with the same readiness it does a scientific discovery. On the contrary they require the co-operation of a vast number of people thinking alike on the subject. That is the reason these questions must be studied in groups and societies like the A.I.M.E. and the American Bar Association and be made the subject of much trade and newspaper discussion. They cannot be applied by individual companies working alone.

Furthermore we have progressed beyond the belief that either the industry or the government working alone can correct the situation and have arrived at the more healthy realization that the task will require most sympathetic co-operation between government and industry backed by an equally sympathetic understanding.

Law and Dictatorship

If we were functioning under a dictatorship, stabilizing the petroleum industry would be a much simpler task. However, in the United States we prefer to bring about these changes by a certain due process of law in which individual rights are carefully scrutinized and attention is given to avoiding conflict with other major public policies. This is a slower and sometimes a more difficult method than that used by the dictator. But it is also less painful and, we believe, is usually more satisfactory in permanent results. It is the lawyer who guides us through the mazes of due legal process. However, before we condemn indiscriminately all assumptions of dictatorial power, it is well that we ascertain whether there are in fact existing due processes of law by which grave crises might be avoided—and if there are not, what a chief executive is to do when he faces such a situation. However, that is not the problem we are attempting to analyze in this discussion. We merely desire to urge joint endeavor by lawyers and engineers in the solving of these problems to the end that adequate machinery might be established under the law, in which event the executive will not be compelled to make that kind of decision.

Proponents of these several remedies, all designed to stabilize the petroleum industry, will more effectively promote the special panacea they chance to advocate by determining what is its relative place in the major program of which it forms a part, how it should be co-ordinated with other methods in that major program, and finally, what is the due process of law by which it should be established. This applies with equal force to unit operation as to the several other parts of the program.

Engineers can formulate scientific methods but the lawyer alone, under our American system, is qualified to incorporate them into the political and economic structure. It is clear that the chaotic condition of the petroleum industry today is due to the fact that the scientist is making advances in technique more rapidly than the lawyer can arrange for their orderly assimilation. It follows therefore that the lawyer and the engineer must work more closely together in the complicated stabilization efforts if the American petroleum industry is to recover from the economic ills that now burden it.

Situation in Texas

The State of Texas recently presented a conspicuous example of a situation wherein an impending crisis demanded action on the part of state officials not only to prevent destruction of its natural resources but to prevent threatened disorder and strife in certain widespread areas. There were admittedly no laws in the statute books that enabled the executive department of the state government to cope with the situation under an established procedure designed for that purpose and yet the actual threatened destruction of property and the hardship upon vast multitudes of individuals were comparable in magnitude to the Chicago fire, the San Francisco earthquake, or the Florida cyclone. They were merely less spectacular in their occurrence and therefore not realized by the casual observer. They were nationwide in their influence.

A burning oil gusher that snuffs out the lives of a few individuals and threatens others—or the burning city—is made the subject of coast to coast headlines, and that public official would be pilloried by public opinion who would not exercise all power of the State necessary to terminate that conflagration. Yet a vast oil region is opened in magnitude beyond previous experience. From, and because of it, natural gas escapes into the air, and oil in the ground is actually lost to recovery daily in quantities equal to a thousand burning gushers. Loss of life and consequent misery to multitudes of laborers through economic pressure is greater in number although less spectacular than the few fatalities of the fire.

Why Sterling Acted

Because these results are more insiduous and less observable to the eye, public opinion is not aroused. A special session of the legislature is called, it ponders the question a month and because of confusion in the minds of legislators over the legal and engineering principles involved, passes legislation wholly inadequate to cope with the problem. Then what occurs? The officials, if they stop the devastation, must act beyond the authority granted. An objecting owner then brings suit to restrain the state agency and the ensuing litigation extends over a period of months or years. In the meantime the destruction will have continued—all under due process of law—and by the time the decision is handed down the need for it will have passed. The governor of Texas in the case we have referred to, is in position to realize the magnitude of the destruction that is being wrought.

The situation described is but a continuing recurrence of similar instances on a smaller scale that have taken place throughout the life of the oil industry. Prevention of that recurrence is of consequence to the American people and it is to speed up the development of an adequate due process of law that we urge a more widespread co-operation between great groups of lawyers and engineers. The speaker had occasion to study this problem in Texas at close range, on the assumption that if the reason for failure to enact adequate legislation in Texas is understood that that understanding will serve to guide industry and government in their further efforts to solve this problem.

Must Not Be Too Specific

If we were permitted an expression out of our observation on the subject it would be that perhaps one of the chief difficulties in securing the passage of adequate legislation is the disposition on the part of those preparing bills to become too specific. For instance, they attempt to define in detail what is and what is not to be considered waste. But waste like fraud is difficult to define. Every engineer knows that waste under one set of

(Continued on Page 122)

LAWYERS WILL CO-OPERATE

Following the address of Mr. Oliver and as a result of the suggestions he offered, the Mineral Section of the American Bar Association authorized its Committee of Nine to co-operate with the American Institute of Mining and Metallurgical Engineers Unit Operation Committee in the study of unit operation without, of course, committing itself at this time to any prescribed method of bringing about unit operation.

*Chairman A.I.M.E. Committee on Unit Operation of Oil Pools. Address before the Mineral Section of the American Bar Association at Atlantic City, September 16, 1931.

New East Texas Refineries Operating

Three Additional Plants Start Operating With Three Shut Down. Operators Expect to Continue Operations Indefinitely

By C. O. Willson

East Texas refiners will be able to hold their own in Mid-Continent operations regardless of developments in crude oil and refined markets, according to opinions expressed the past week by representative plant operators and others familiar with probable developments facing the refining branch of the oil industry over the next six months of decreasing gasoline consumption.

Due to the constantly changing conditions of the past few weeks, brought about by shutdowns in important fields followed by new proration programs, the average refiner in East Texas and other Mid-Continent areas has been unable to predict what would happen next. It has been assumed by some that the substantial curtailment of crude oil production in the East Texas fields which is now effective, would mean the end of a majority of the plants in the field which have been built during the past six months.

Strong Position

A survey of the field refinery situation the latter part of the last week failed to find support for this view. The plant operators were agreed that "either the crude oil price must come down or the refined market must go up" but they appeared confident they were in a better position to await either development than the average independent refiner in other parts of the Mid-Continent.

Three plants which have been under construction since August started operating the past week. The plants are owned by the Indian State Oil Co., Gladewater Refining Co. and the Sinclair Refining Co. The first plants have rated capacities from 750 to 1,000 bbls. daily while the Sinclair plant will be able to skim up to 3,000 bbls. daily.

The reasons back of the building of these plants and their probable future operations reflect conditions at most of the other plants in the field. Both the Indian State and Gladewater plants were built principally to furnish crude oil outlets for wells owned by the companies or by affiliated interests. The Indian State company has three wells. Before completion and during the period of unrestricted operation, the owners had reason to fear that there would be no outlets for the oil through major or small crude oil buyers except at prices which would mean that the operation would be unprofitable. A small skimming plant appeared to be the only possible outlet so a small pipe still with tower equipment was installed adjoining the producing lease. Practically the same situation applied in the case of the Gladewater Refining Co., which is affiliated with the Cherokee Chief Oil Co. The latter company is furnishing the crude for the plant from its wells. In the case of the Indian State company there was the additional factor that the company has station outlets for gasoline at Dallas. The gasoline, starting last week, is now being transported by truck from the plant to Dallas, a distance of approximately 135 miles.

The Sinclair plant situation is typical of a large company operation. The Sinclair Oil & Gas Co. is one of the largest producers in the East Texas fields with a number of wells drilling near the refinery site. This activity furnishes an outlet for the refinery fuel oil which is used in firing boilers at drilling wells. The demand for this purpose last week exceeded the supply. In the marketing end, the Sinclair interests have company owned stations and jobber accounts in East Texas which can be served from the new plant at lower transportation costs than from its plant at Houston and that under construction at Fort Worth. All of the three plants which started operating the past week are located near Gladewater, Tex., one of the active areas of East Texas.

Plants Operating

A check completed the latter part of last week showed the following plants operating with their approximate daily crude runs to stills, in barrels:

	Crude to stills
Arrow Refining Co., Overton	1,200
Beacon Oil & Ref. Co., Henderson	1,800
Boone Ref. Co., Arp	300
Constantin Ref. Co., Overton	1,200
East Texas Ref. Co., Longview	7,200
East Texas Ref. Co., Henderson	5,000
Gladetex Ref. Co., Gladewater	500
Gladewater Ref. Co., Gladewater	500
Indian State Oil Co., Gladewater	600
Kilgore Ref. Co., Kilgore	1,500
Overton Ref. Co., Overton	1,800
Sinclair Ref. Co., Gladewater	2,000
Taylor Ref. Co., Tyler	8,000
Total	31,600

The plants of the Central Refining Co. at Henderson; Rusk Refining Co., Overton; and the Slack Petroleum Co., Willow Springs, were shut down with no definite date for the resumption of operations. The new plant of the Petroleum Refractionating Corp. (Bell Oil & Gas Co. and Danciger Oil & Refining Co.) with a capacity of 10,000 bbls. daily is rapidly nearing completion and will be ready to operate by October 15. Construction work on two small plants in the field had stopped temporarily.

The total figure of 31,600 bbls. daily for the operating plants is based on reports previous to the reduction of the allowable production per well from 225 bbls. daily to 185 bbls. daily. The latter figure became effective Monday. At most plants this reduction of approximately 20 per cent will be reflected directly in the daily crude oil runs to stills so that the runs were estimated around 25,000 bbls. daily the middle of the week.

Competitive Position

The question often asked is "What will the East Texas refiners do when they no longer have a cheap crude oil supply for their plants." Their answer is that they are in a better position in regard to a crude oil supply than most of the older Mid-Continent refining areas with certain advantages in marketing offsetting the disadvantages. Bluntly expressed, they are predicting that in most cases if any shutdowns are necessary over the remainder of the year, they will be in other Texas, Kansas and Oklahoma refinery centers where East Texas crude oil is not now available. There has already been some evidence that this contention is sound.

Right now the East Texas refinery operators are benefiting from a local condition in the sale of fuel oil. The requirements of drilling rigs supplemented by railroad contracts and greater buying from near-by cotton gins, lumber mills and other small industries and public utilities is taking all of the available supply at prices ranging from 40 to 60 cents per barrel. This situation is in contrast to that previous to the shutdown of the field, when spot fuel oil prices slumped to 5 cents or less due to a slow demand. Present prices are from 10 to 30 cents per barrel higher than the general market at refinery points in North Texas, Texas Panhandle, Oklahoma and Kansas. Due to the higher prices, most refiners are not taking a separate gas oil cut but are leaving it in the fuel oil. The refiners are slowly developing the local demand for kerosene and kerosene distillate. The bulk of these products, however, is still sold for interstate movement at prices competing with other Mid-Continent areas.

Like all other areas operating with Mid-Continent crudes, East Texas refiners have seen their gasoline prices decline rapidly since the East Texas Field was reopened. The open market basis East Texas plants for interstate shipment or shipment to the coast is around 2.5 cents per gallon. Figured on this basis the following is representative of a yield from a barrel of crude oil:

Product—	Yield— Pct.	Yield— Gal.	Price per gallon, cents	Total cents
Gasoline	38	15.96	2.5	39.9
Kerosene	10	4.2	1.5	6.3
Fuel oil and gas oil	50	21.0	1.35	26.25
Total	98			72.45

From the above it is apparent that the refiner paying 68 cents posted price for the crude oil plus a small pipe line charge is not more than breaking even. It should be remembered that the 2.5-cent price is not representative of the price being received by a number of plant operators who have developed a substantial dealer and station business in East Texas towns. The thousands of cars, trucks and tractors that are daily employed in the oil fields, use large quantities of gasoline. The net back to the refiner at his plant from this class of business is usually from 4 to 6 cents per gallon. Some of the companies are also handling lubricating oils and greases in connection with their gasoline truck sales.

The East Texas refiners also point to their advantage over other Mid-Continent refiners in shipments to the coast. Due to the low prices prevailing at Texas Gulf points, East Texas refiners have not participated in export and coastwise business in recent weeks. This outlet appeared promising several months ago

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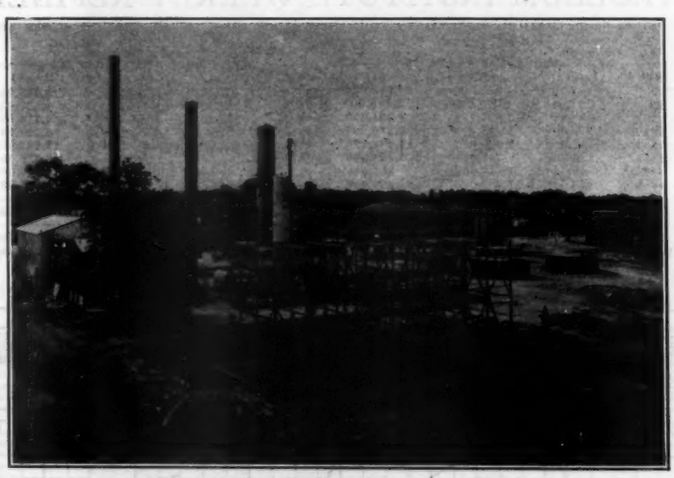
EAST TEXAS REFINERY UNDER CONSTRUCTION



View of the 10,000-bbl. plant of the Petroleum Refractionating Corp. under construction near Longview. Principal equipment is being installed by the Southwestern Engineering Corp. Plant will be in operation by October 15.

ASKS FEDERAL AGENCY TO PASS ON CO-OPERATIVE TRADE AGREEMENTS

ATLANTIC CITY, N. J., Sept. 21.—Establishment of a federal agency to which business agreements may be submitted voluntarily in advance for approval was recommended by Rush C. Butler, of Chicago, in addressing the mineral law section of the American Bar Association.

Mr. Butler pointed out the great need for amendment of the Sherman antitrust law and said that the oil industry had found itself hemmed in by the Sherman law on one side and military law, enforced by the states, on the other.

"The Sherman law, a Federal statute, encourages unlimited production," said Mr. Butler, who is chairman of the commerce committee of the bar association, in advocating amendments to the Sherman act. "State governments vi et armis compel a complete shutting down of the plant. Being unable because of the Sherman law reasonably to curtail production, oil operators have been required at the point of the bayonet to cease oil operation.

"Government is in business. It is the dominating factor in the oil industry today."

Curtailment Plan

Mr. Butler pointed out that two years ago the leaders in the petroleum industry had been willing to enter into an arrangement for qualified curtailment of production with the approval of the authorities of the Federal government and of the states affected. In spite of the soundness of the economic condition which would have been created, Mr. Butler said that the program failed because the Federal authorities withheld approval.

Without raising the question of the justification of the action of two of the states in invoking the use of the military in stopping oil production, Mr. Butler said that martial law was ordered because of the desire to aid in curing evils long endured—"evils for which the Sherman law is at least in part responsible."

No one can except, he said, to the interpretation of the Sherman law as meaning that unreasonable restraints of trade are unlawful, but the difficulty is

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Synthetic Rubber From Petroleum

Possibilities for Preparation of Artificial Product Not Promising Under Present Conditions but Encouraging

By C. K. Francis, Ph.D
Technical Editor

What about making rubber from petroleum?

The chemist has learned to tear things apart, to know the insides and what made them that way, but the knowledge gained by analyses has been slow in growing to the point where it is sufficient to enable him to bring similar parts together to duplicate the original. Much has been said of the importance and need of synthetic methods. Considerable success has been attained in making imitations and even in producing duplicates. Cotton was first treated to look like silk, then we learned how to actually make silk, not only from cotton, but also from wood. An American chemist has made a silk purse from a sow's ear.

Without artificial leather we could not enjoy the variety of pleasing designs in furniture upholstery, and the automobile industry would be hard put to find sufficient real leather to meet its requirements. The vast array of synthetic dyes from coal tar has been followed by synthetic paints which promise to be more durable than those of mineral origin.

The production of portland cement, one of the first synthetic building materials, brought into the arts a material which has had a far-reaching influence in building construction as well as in providing better highways. Primitive man looked to nature to supply his needs, but modern inventive skill is constantly trying to improve on nature. Indigo and camphor are now attainable, through laboratory methods, in a high state of purity.

Rubber Supply

The world now requires over 857,000 tons of rubber each year, the larger part of which is used in the United States, while we produce less than 3 per cent of this supply. The source of rubber is the juice or latex obtained from a number of plants and trees, from which the rubber may be coagulated by means of heat. While there are over 200 plants known to yield this latex, the greater part of our rubber comes from trees. The genus Hevea, originally found in Brazil, yields the largest quantity of the high-grade rubber. Most of the rubber countries are located in the tropics, within a belt 500 miles wide extending from latitude 30° north to 30° south. The important districts are in Malaya, Dutch East Indies, Ceylon, British India, British Borneo, Sarawak, Indo-China and Brazil.

For the past 25 years the market price of rubber has passed through some frenzied phases. Raw rubber sold for $3.12 a pound in London in 1910. The New York market saw para crude sell for $1.908 at that time. The market price, at New York, is given in the table as shown in U. S. Department of Commerce reports.

PRICE OF CRUDE RUBBER AT NEW YORK
(Price is per pound)

Year	Price	Year	Price
1913	$1.052	1923	$.183
1914	.616	1924	.212
1916	.669	1926	.380
1918	.549	1931	*.048
1920	.333		

*August 29, 1931.

This steady decline in price has taken place during a period of increasing consumption. It is explained as due to

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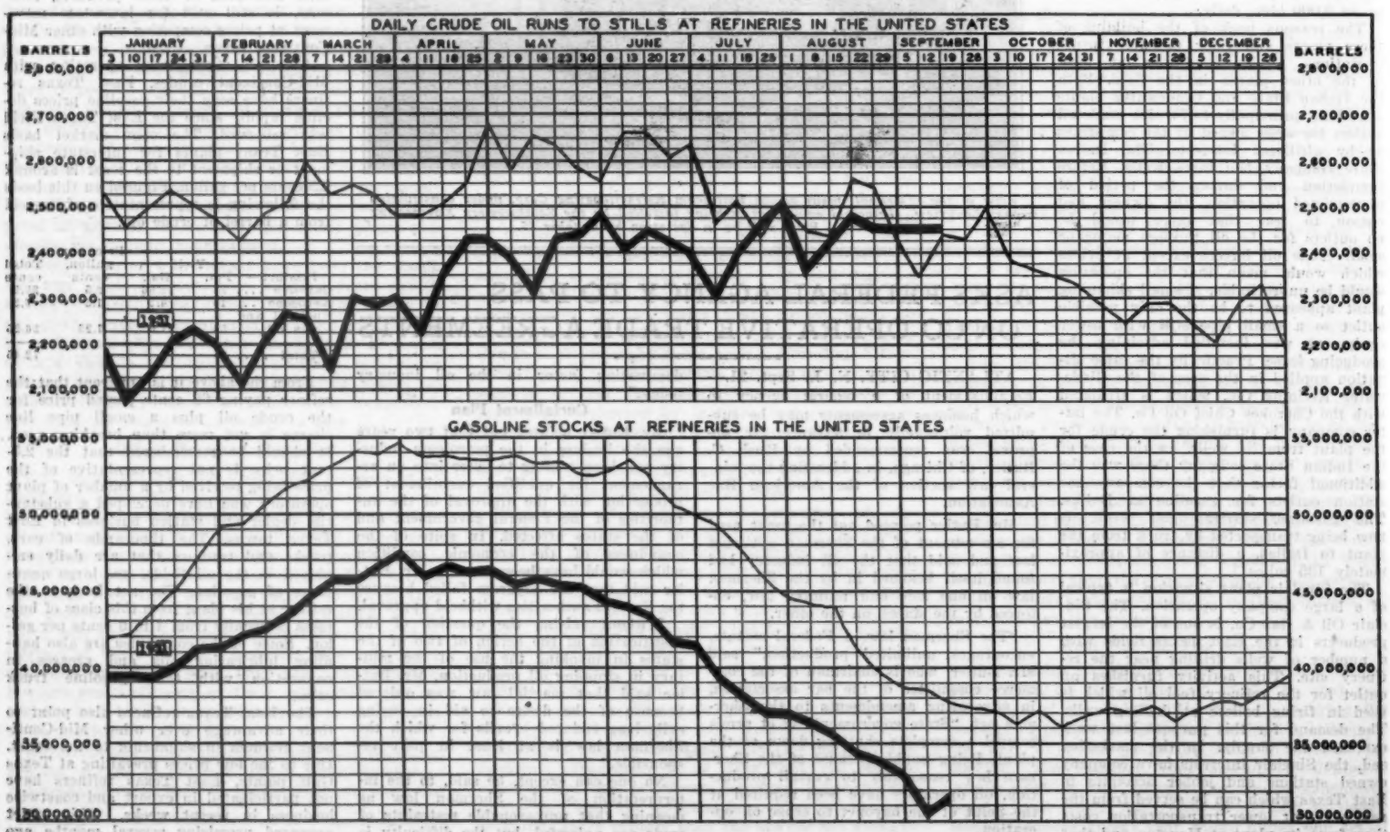
AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending September 19.

	Week ending September 19				Week ending September 12				Week ending September 20, 1930			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	497,300	3,935,000	10,799,000	100.0	457,000	4,252,000	10,625,000	100.0	456,700	5,492,000	11,341,000
Appalachian	91.8	112,300	1,209,000	1,585,000	91.8	111,900	1,244,000	1,525,000	91.8	93,300	1,091,000	1,135,000
Indiana, Illinois, Kentucky	98.9	336,500	3,828,000	4,924,000	98.1	360,100	3,956,000	4,716,000	99.6	303,600	5,542,000	4,443,000
Oklahoma, Kansas, Missouri	89.6	282,000	2,715,000	5,236,000	89.6	304,100	2,672,000	5,191,000	89.3	265,300	2,524,000	4,881,000
Texas	91.3	512,600	5,666,000	11,482,000	91.3	534,600	5,457,000	12,043,000	90.4	579,600	5,695,000	10,719,000
Louisiana and Arkansas	98.9	166,300	749,000	3,304,000	98.9	168,300	803,000	3,326,000	96.3	158,400	1,117,000	2,094,000
Rocky Mountain	89.3	49,700	1,188,000	808,000	89.3	49,200	1,215,000	804,000	93.6	52,300	1,832,000	1,187,000
California	96.5	475,000	11,833,000	96,995,000	96.5	474,700	13,218,000	97,344,000	99.3	531,700	13,967,000	104,586,000
Total United States	95.0	2,431,700	31,123,000	135,133,000	95.0	2,459,900	31,818,000	135,374,000	95.6	2,440,900	37,260,000	140,376,000
Texas Gulf Coast	99.8	380,000	4,493,000	8,137,000	99.8	390,600	4,295,000	8,532,000	100.0	440,700	4,498,000	7,867,000
Louisiana Gulf Coast	100.0	112,000	580,000	2,299,000	100.0	111,900	594,000	2,211,000	100.0	108,300	836,000	1,377,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



Data for 1931 based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above tables.

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Published Weekly by
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TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle.

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Three months	$2.00	One year (in Canada)	$7.00
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THE DECISIVE TURN

Things moved fast in the past week.

Just when the black shadow of East Texas seemed most impenetrable the light broke through.

The dawn did follow the darkest hour.

The decisive turn came so quickly it was here before most people realized it.

Instead of being only another series of conferences the meetings at Oklahoma City and Austin took swift and definite action, settling the crude situation with surprising suddenness.

The oil industry is today in better position than it has been for years.

The five years' campaign of education against the overproduction of crude oil has finally secured an effective agreement limiting production in line with demand.

It is true that this agreement was not reached wholly by voluntary co-operation and that, indeed, it had to be compelled by military force without precedent and possibly without law, but the fact that it has been reached and is demonstrating its usefulness eclipses for the moment all other considerations.

The big point is that, for the first time, the production of crude is to be conducted on a definite schedule to meet requirement and that this schedule has been established by law that is actually being enforced.

Without waiting for a formal interstate compact that would have been subject to tortuous delay in getting through the various legislatures and congress, representatives of the governors and regulatory commissions of Texas, Oklahoma and Kansas meeting with representatives of the oil industry in the three states, agreed upon an allowable production of crude from each state which should prevent wasteful overproduction.

The State of California is doing its best along the same lines and with the four main oil-producing states limiting their production the oil-producing industry is at last able to order its operations on a stable basis free from the fear of reckless overproduction demoralizing the business.

This long-delayed stabilization of crude production passes the responsibility clearly up to the refiners.

The refiner now knows what he can expect in the matter of crude supply. He already knew what to expect in the way of demand for refined products.

With these basic facts established there can be no excuse for overproduction in the manufacturing division and the consequent demoralization of the gasoline market by excess supply.

On the contrary, with the success of the producing branch in stabilizing production in the face of almost insurmountable difficulties and the clear demonstration of the benefits resulting, the refining branch has an example and an object lesson that cannot be wilfully ignored.

Refiners cannot continue to make and sell gasoline at present prices. The steadying of the crude situation will give them an opportunity to stabilize their operations on a basis which will assure them a fair return on their product, if they will heed it.

Statistically the refining division is in better shape in regard to stocks than for several years.

Gasoline stocks are at the lowest point at this time of year for a considerable period. Kerosene stocks are 25 per cent less and fuel oil stocks are lower, with stocks of several of the by-products also in much better shape.

If refiners will carefully gauge their operations for the balance of the year, which they can easily do by consulting the reports of the Economics Committees of the Federal Oil Conservation Board and of the American Petroleum Institute, they can take advantage of the strong statistical position which they have attained since the first of the year and by governing their winter operations accordingly can enter the main consuming season next spring with every confidence for a prosperous 1932.

The trouble in the refining branch has been the same as in the producing branch, that while the great majority of operators was convinced of the wisdom of curtailing overproduction there have been an obstructive few who have nullified all efforts at successful co-operation.

That disruptive minority, no matter how small from a percentage standpoint, was able to delay co-operation among crude producers for five years and ultimately to thwart it in East Texas until the pressure of public opinion and the military force of the State compelled submission.

No governor or state militia is likely to help the refining branch to deal with its obstructors but with the stabilization of crude production there should be less chance for demoralization of the refined market if individual refiners see that their own operations are in line with requirements.

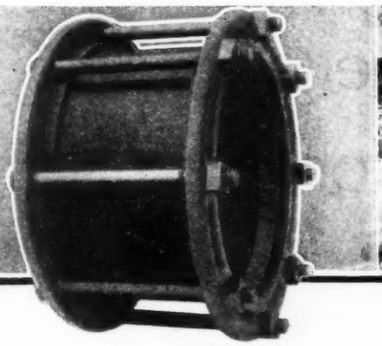
The settlement of the crude overproduction situation, even though by methods recalling the adage that necessity knows no law, may be of far-reaching consequence in a world beset by overproduction in so many commodities.

It will offer a definite illustration of an industry as a whole basing its production upon the known demand instead of engaging in a competitive struggle regardless of requirements.

Stress was laid at the Atlantic City meeting of the National Petroleum Association upon the study of statistics. The oil industry has been exceptionally well served in the matter of statistics of both crude and refinery production and demand and could be better served with a freer and speedier co-operation by the units of the industry.

As the necessity for gearing production to demand is more generally recognized as a preventive of wasteful overproduction and resultant demoralization of trade, statistics will cease to be regarded as mere records but will increasingly be used as a chart for future operations.

The Oil and Gas Journal has specialized in comparative statistics of the various phases of the industry for years and has insistently urged their value as a guide to operations. The solution of the crude production situation by gauging output to demand, now adopted by the industry and the governments of the chief oil producing states, is a confirmation of that view.



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Barnsdall Refinery Has Combination Recovery and Gasoline Stabilizer

* * * * * *

By L. S. Gregory*

The Barnsdall Refineries, Inc., recently started operating a combined recovery gasoline and pressure gasoline stabilizer at its Barnsdall, Okla., refinery.

The Barnsdall refinery is one of two Barnsdall company plants in Oklahoma which is now making regular shipments of gasoline to terminals in the Middle West through the pipe line system of the Great Lakes Pipe Line Co. Along with five other companies which are now using the facilities of the Great Lakes line, uniform specifications in motor fuels are required in all shipments made from the Barnsdall refinery. Particular attention is paid to the vapor pressure of all gasoline shipments tendered to the pipe line.

In order to secure an accurate and economical control of the vapor tension of all motor fuels refined at the plant, the Barnsdall management decided to install a unit which would handle the volatile material from the refinery's gasoline plant and at the same time stabilize the pressure distillate to meet the requirements of the marketing department. The new unit has sufficient capacity to handle 5,000 gallons of recovery gasoline and 40,000 gallons daily of pressure gasoline.

* * * *

The accompanying flow sheet illustrates the general flow and operation of the unit. The pressure gasoline is introduced into the surge tank from the separators of two Cross cracking units under its own pressure of approximately 20 pounds per square inch gauge. A centrifugal pump takes the gasoline from the surge tank and discharges it in the feed surge tank under 50 pounds per square inch gauge pressure.

A liquid level control on the feed surge tank, with valve in the discharge line of the centrifugal pump, maintains a constant liquid level in the feed surge tank. The gasoline from the recovery plant is introduced directly under its own pressure of 50 pounds per square inch gauge into the feed surge tank. The column feed pump takes suction from the feed surge tank.

Reduces Load

This method of handling the two unstabilized streams of gasoline requires two surge tanks but reduces the load on the recovery plant. The maximum pressure that the Cross gasoline can be delivered to the unit is 20 pounds per square inch. If the recovery plant gasoline valve expanded down from 50 pounds per square inch to 20 pounds per square inch a considerable portion of the recovery plant gasoline would vaporize. This would increase the amount of vent gases returned to the recovery plant and would therefore increase the load.

The speed of the feed pump is controlled by means of a constant speed governor. The operator adjusts the speed governor to maintain an approximate constant level in the 20-pound surge tank. The level in the 50-pound separators is maintained constant by means of the liquid level control which permits the centrifugal pump to discharge only sufficient Cross pressure gasoline into the surge tank to keep a constant level. The operator rarely needs touch the pump governor unless a Cross unit goes down or comes on stream.

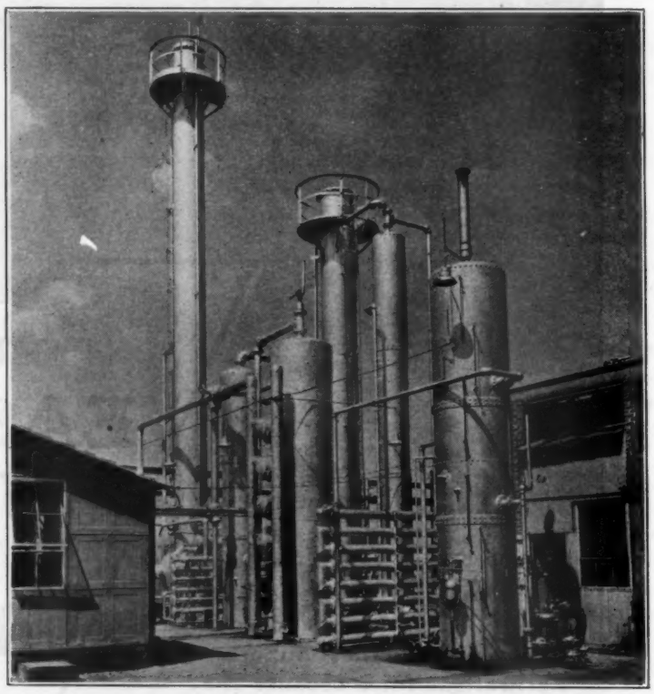
The feed pump discharges the feed through the heat exchangers into the side of the stabilizer.

The overhead vapors from the stabilizer are partially condensed in the reflux condenser and then pass into the reflux accumulator. The condensate is separated from the stripped gas in the reflux accumulator and pumped back to the top of the stabilizer as reflux. The stripped gas leaves the reflux accumulator through a back pressure valve which holds a constant pressure on the system.

The reboiler at the base of the column is heated with steam. The stabilized gasoline of the desired vapor tension is removed from the reboiler and passed through heat exchanger with the incoming feed. It then leaves the exchanger, is water cooled, and sent to storage. The reboiler temperature is held constant by means of a temperature recording regulator.

The temperature recording regulator and back pressure recording regulator are mounted on a gauge board in the pump house. There is also mounted on the gauge board electrical indicating equipment for six temperature points on the unit. These six temperature points are: Temperature of feed entering column; temperature on top bubble tray; temperature of reflux accumulator; temperature of reboiler; temperature of cooled product; and water temperature entering unit.

The gauge glasses on the unit are so mounted that the operator can see all levels without leaving the pump house.



General view of gasoline recovery and pressure distillate stabilizer at the Barnsdall, Okla., refinery of the Barnsdall Refineries, Inc.

* * * * * * * *

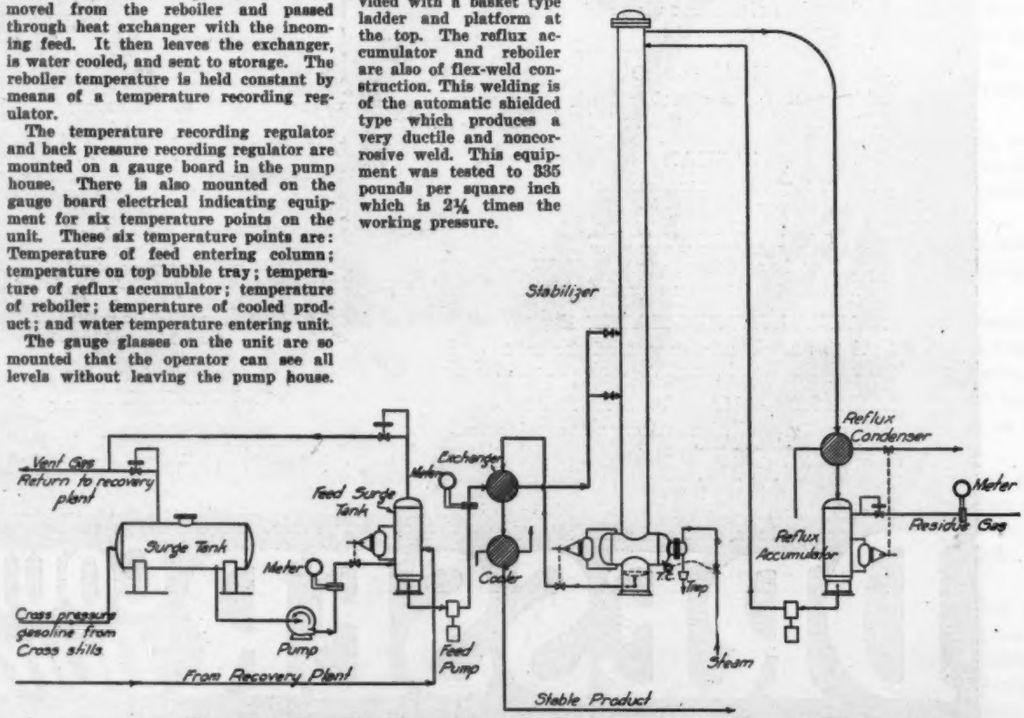
The operator can also control the reboiler temperature, column pressure, and reflux rate from the pump house. It is therefore possible for the operator to check operation of the unit or to vary the vapor tension and volatility of the product as desired without leaving the pump house.

The stabilizer is of flex-weld construction with top head removable. The bubble trays are removable cast iron trays and are installed through the top of the tower. This arrangement facilitates any cleaning or repairs that may be necessary. The tower is provided with a basket type ladder and platform at the top. The reflux accumulator and reboiler are also of flex-weld construction. This welding is of the automatic shielded type which produces a very ductile and noncorrosive weld. This equipment was tested to 335 pounds per square inch which is 2¼ times the working pressure.

The feed pump and reflux pump are the simplex steam type. The column pressure control and reboiler temperature control are of the air actuated type. The heat exchangers, reflux condenser, and product cooler are of the multitubular type. The reflux condenser and product cooler have removable tube bundles. All liquid level controls are direct acting ball float controls.

The unit is very compact but accessible as is shown in the photograph of the unit. It was necessary to design this

(Continued on Page 123)



Flow chart of combination gasoline recovery and pressure distillate stabilizer.

*Black, Sivalls & Bryson, Inc.

Are you troubled with seepage water?

Have you a basement below sewer level . . . or an elevator sump, scale pit, piping tunnel, etc., that accumulates water by seepage, and drainage? Then you will be interested in the Penberthy Pumps pictured here.

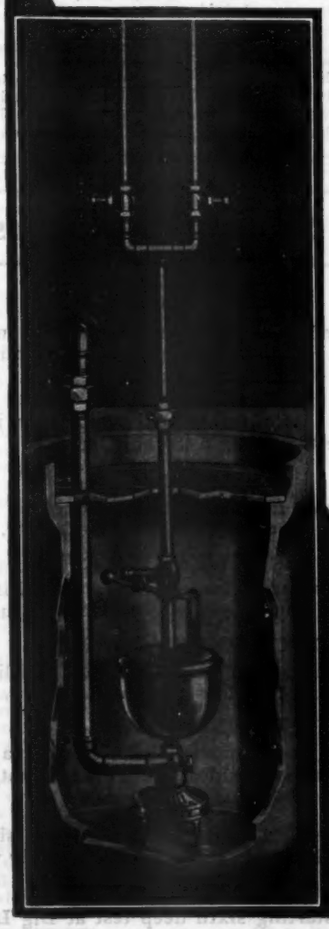
Penberthy Pumps will keep dry the places that cannot be drained directly into the sewer.

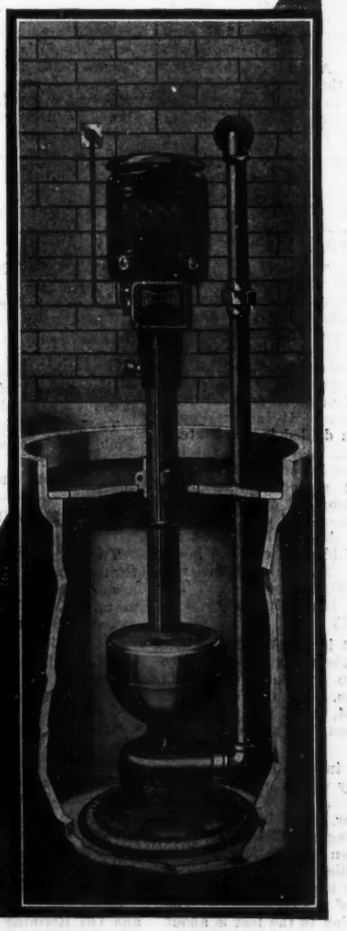
PENBERTHY PRODUCTS

These pumps are completely automatic in operation; when installed . . . and installation is easy . . . they require no attention. They are ruggedly built of copper and bronze so that they are dependable and impervious to rust.

The Penberthy Pump shown at the left is operated by either steam or water pressure. When the steam pressure is down, the change to water operation is instantly made by simply closing one valve and opening another. The electrically operated unit is shown below at the right. The operating cost of both types is very small.

Penberthy Pumps are carried in stock by leading jobbers throughout the country. Write us for capacities, specifications and installation drawings . . or see your plumbing contractor.





PENBERTHY INJECTOR COMPANY
DETROIT

East Texas Pools Have Peculiar Gas

Low Methane Content May Be Due to Fact Some Gases Originally in Fields Migrated Through Sands to Other Areas

By L. G. E. Bignell
Petroleum Engineering Editor

As development progresses in the East Texas oil fields new conditions are found to exist that mark this area as peculiar in many respects to other fields and necessitates added work on the part of the petroleum engineer and other technicians in solving the new problems brought forth. There seems to be no reason to assume that these problems will not all be solved in a satisfactory manner, but that they put in an appearance in what was apparently a very ordinary type of pool when first opened, only goes to show that there is always something new in the petroleum industry and to keep it abreast of the times requires trained men. If East Texas had been left to those who first exploited it for what money they could immediately gain much of the oil and gas would have been wasted.

The U. S. Bureau of Mines has recently issued a report of investigations covering the properties of typical crude oils from the East Texas Field prepared by E. L. Garton. A study of this report shows that from the four samples examined, taken from various portions of the field, "the gasoline and naphtha contents as determined by the U. S. Bureau of Mines method averages 36 per cent, the kerosene distillate 9.6 per cent, the gas oil 15.1 per cent, the nonviscous lubricating distillate 9.7 per cent and the medium lubricating distillate 6.2 per cent. The gas oil appears to be a good stock for the production of gasoline by cracking processes, and the lubricating distillates appear to be similar to distillates of the same ranges of viscosity obtained from Burbank, Okla., crude which is generally recognized as a high-grade refining crude."

Pourpoints of Crude

One of the properties of the crude that is interesting is the pourpoints for the oil from the different portions of the field which is given below:

Field—	Sand
Southwest extension Joiner Pool	Woodbine
Joiner	Woodbine
Kilgore	Woodbine
Longview	Woodbine

From the above data it will be noted that the pourpoint is from 25° to 45° F. for this crude oil and there may be some trouble experienced in handling this material during cold weather as the field is situated in an area where freezing periods are experienced during the winter.

Paraffin May Give Trouble

Some production men who are familiar with conditions in the Panhandle of Texas fields are of the opinion that East Texas oil may tend to congeal during the cooler weather and taking the pourpoint as a criterion this does seem possible. However, it is interesting to note what takes place after the gasoline and kerosene have been removed from the crude as indicated by this analysis:

DATA INDICATING THE BASE OF THE CRUDE OIL

Field—	Sand	Depth, feet	Fraction distilling at atmospheric pressure between 250-275° C. Sp. gr.	Fraction distilling at atmospheric pressure between 250-275° C. A.P.I.	Fraction distilling at 40 mm. vacuum between 275-300° C. Cloud point, °F.
Southwest extension Joiner...	Woodbine	3,688	0.835	38.0	95
Joiner	Woodbine	3,592	.834	38.2	95
Kilgore	Woodbine	3,652	.835	38.0	95
Longview	Woodbine	3,587	.835	38.0	95

In a note explaining this analysis it is stated that "the 'cloud point' of the fraction distilling between 275° and 300°

	Properties of crude			
Depth, feet	°A.P.I.	Sulphur %	Viscosity at 100° F.	Pour-point
3,688	39.4	0.30	40	45
3,592	38.6	.28	40	25
3,652	40.0	.29	40	25
3,587	38.4	.26	41	30

C. (527° to 572° F.) at 40 mm. absolute pressure indicates that wax is absent and that the oil has a naphthene base when the cloud point is reported as being below 5° F. If, however, the cloud point is above 5° F. it indicates the presence of wax and that the oil may have a paraffin, an intermediate, or a hybrid base." Because of the fact that the analysis reported in the first tabulation indicated that the pourpoint is between 25° and 40° F. this oil has been classed as having an intermediate base.

No analysis of paraffin contents of this crude oil is available but judging from the pourpoint test which indicates that this oil congealed in the laboratory at from 25° to 45° F. it seems safe to assume that trouble will be experienced in handling it on the lease during freezing weather.

This possibility seems to be further indicated because of the fact that has been established in the refineries that after the gasoline and kerosene contents of the crude oil have been removed the remaining liquid will congeal at a maximum temperature of 100° F. That is, this oil becomes solid when the temperature is below 100° F., but it has been found that unlike other fuel oil that will solidify at from 50° to 60° F. the East Texas fuel oil can be easily liquefied by adding a little heat.

It therefore seems quite possible that if the crude oil does tend to congeal in the stock tanks at freezing temperatures that it will not be difficult to again liquefy it by running a little steam through coils placed in the tanks.

Some wells in the Joiner area have al-

(Continued on Page 123)

Late Fields

OKLAHOMA

Mid-Kansas Oil & Gas Co.'s No. 6 Preston-Culp, NW cor. NE, Section 6-5-9w, on the west side of the Cement Pool, in Caddo County, was drilling in a rotary hole at 9,840 feet in black shale and still in the Pennsylvanian series. The last string of casing was the 9-inch casing which was landed at 5,313 feet, with the open hole to bottom. It is the deepest hole that has been drilled in the State.

On September 22, there were a total of 836 wells completed in the Oklahoma City Field. The most recent completion in the field was Wilcox Oil & Gas Co. and others' No. 1 Bucher, SW cor. NW, Section 3-11-3w, in the north end of the pool, flowed 4,827 bbls. of oil in 4 hours and 15 minutes. The gas volume was estimated at 20,000,000 feet a day. The oil and gas was found in the Wilcox sand at 6,352-6,515 feet.

The wildcat test in the West Chandler Field in Lincoln County was believed to be running low on structure. Magnolia Petroleum Co.'s No. 1 Cash, SW cor. NE SW, Section 6-14-4, found the top of the Sylvan at 4,950 feet and was drilling at 4,976 feet.

A wildcat test in the Kingston area in Marshall County was preparing to test a showing of oil. J. L. Dixon's No. 1 McDuffee, SW cor. SE, Section 3-7s-6, found an oil showing at 791-800 feet. The test was shut down at 800 feet still in the sand. It is believed it will be drilled deeper through the sand before a production test is made of the oil showing. The nearest oil production to the test is about 7 miles to the southwest.

The only drilling in Murray County is the wildcat test of Capitol Producing & Refining Co.'s No. 1 Cutchall, SE cor. NE, Section 6-1-2, which found a sand at 2,093 feet with a showing of oil and gas. The owners were preparing to land the 8-inch casing on top of the showing. It is the third showing of oil found in the test which is located on a block of 1,200 acres.

Stauffer and others' No. 1 Jones, S half NW NW NW, Section 2-11-3w, in the north end of the Oklahoma City Field, was completed and made 1,974 bbls. of oil in 1 hour and 15 minutes from the Wilcox sand at 6,240-6,364 feet. The gas volume was estimated at 40,000,000 feet a day. The completion of the well makes a total of 836 wells in the Oklahoma City Field.

The production from the Oklahoma City Field shows a wide difference over the past two days. On Monday, September

(Continued on Page 125)

MAGNETIC STORM

Tucson, Ariz., observatory of the United States Coast and Geodetic Survey report a moderate magnetic storm began at 3 a. m. (C. S. T.) on September 15 and ended at 8 a. m. (C. S. T.) on the 17th. Their telegrams follow:

"Storm began fifteenth. Nine. Moderate."

"Storm ended seventeenth. Fourteen."

DARST CREEK REPURCHASE

SAN ANTONIO, Tex., Sept. 21.—United North & South Development Co. has repurchased from the Louisiana Oil Refining Co. the properties in the Darst Creek Field in Guadalupe County which were sold to the Louisiana concern in April, 1930. United will take charge of the property September 25.

Since purchasing the property Louisiana Oil Refining Co. has drilled a number of additional wells on the property and there are now 17 producing wells and the daily average runs for August were 1,500 bbls. It is understood that the large interests of Louisiana in the East Texas Field was one of the reasons for turning loose the Darst Creek property.

High Spots in Field News

GULF COAST

Moss Bluff Dome has only completion of week. Interesting wildcat on Cheek Dome, Jefferson County, northwest Humble flank.

CALIFORNIA

Six completions in California area; largest in north dome of Kettleman Hills Field flowing 6,480 bbls. natural.

KANSAS

Ritz-Canton output increases state production. Field opened after brief shutdown. Activity in Ellsworth County.

SOUTHWEST TEXAS

Well in Jim Wells County increases after shot. Fifteen new locations in Schoolfield-O'Byrne extension and in Pettus extension.

ROCKY MOUNTAIN AREA

Prairie enters northeastern Colorado Field. Drilling resumed in Hobbs area, New Mexico. Wildcat in Crook County, Wyoming.

NORTH LOUISIANA-ARKANSAS

Dry holes feature operations in North Louisiana and Arkansas during week. Three active wildcats in Bowie County, East Texas.

OKLAHOMA

Reopening of Oklahoma City Field under discussion. Leasing in various parts of the State has increased in past few weeks.

WEST TEXAS

Big Lake Co. is starting sixth deep test at Big Lake. Western Crane County logging favorable. New producer in Ward County. Cook Pool reopened.

EAST TEXAS

Ninety-four completions during week with 100 scheduled for this week; 166 new locations started and 2,050 producing wells. Drilling at breakneck speed. Continual revision of allowable necessary.

Breakneck Drilling in East Texas

Ninety-four Completions Last Week and 100 Scheduled for This Week With 166 Locations Staked and 2,050 Producers

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Sept. 21.—Under the new order issued by the Railroad Commission cutting the daily allowable in East Texas 40 bbls. per well to 185 bbls. per well, with around 2,050 wells on production the total daily allowable will run 379,250 bbls., 94 wells having been completed last week to add to the greatly increasing number of producers. Another 100 wells can be expected to be completed within the week, bringing the daily allowable almost up to the 400,000-bbl. mark, which daily allowable the Railroad Commission desires to maintain as a maximum for the district. The new order went into effect September 21.

With 166 locations staked in the district this week, and drilling progressing at break-neck speed, similar to the activities before martial law, it looks as if nothing would slow up drilling activities unless it is a continual curtailment of each well to a smaller figure, or curtailing the district on an acreage basis. The order stating that only one well can be drilled to each 20-acre unit apparently has had no effect in curtailing the staking of new locations, and cutting down drilling, for there are hundreds of 20-acre units to be drilled, the majority of them owned by major companies, which are continuing the rapid drilling pace.

Gas Oil Ratio and Pressures

Engineers have been making a study of the gas-oil ratios and pressures in the fields, their reports showing that pressures gained an average of around 25 pounds per well during the shut-in, pressures varying in different parts of the district, and even varying on the same leases, while gas-oil ratio reports showed the same conditions existing. Sand conditions caused the variations in the different parts of the district, while depth to which the wells were drilled no doubt caused the variations on the same leases where wells showed a great difference in pressures, or in the gas-oil ratios. However, some wells on the same lease, drilled to about the same depth, and having approximately the same amount of sand, and flowing through similar chokes, varied widely in gas-oil ratios, casting a puzzle into the situation, and bringing up the question what other factors are present in the fields to cause the discrepancies.

The Railroad Commission has issued an order that only 500 feet of gas shall be produced with each barrel of oil. Many wells are not making this much gas per barrel of oil, while there are still many others making considerably more than 500 feet per barrel, the average of the field possibly running close to 415 feet per barrel, several wells checked in the Gladewater area having an average of only 340 feet per barrel. Pressures on the eastern side of the Joiner Pool will average even less than this, for this area is the one in which the majority of dead and pumping wells are located. The highest ratio in the field was in an Upshur County well and was 880 feet to 1 bbl. of oil flowing 33 bbls. per hour through three-quarters-inch choke.

Price Structure

The price structure in East Texas seems to be wavering at the present time due to some of the independent operators contracting the sale of their oil below the market price, these contracts being made for cash, or for aid in drilling their wells, guaranteeing the sale of their oil and connections with the major company which advances the cash or equipment. One company has issued an order, retroactive to September 12, that it would pay the average weighted price, this move no doubt due to the contracts being made by others below the posted price. The move probably will not be followed by the other major purchasers in the field who at present are paying the posted price of 68 cents per barrel and the per cent price may be maintained regardless of the lower priced contracts.

Contracting the sale of their oil below the posted price helped to bring the price down in East Texas before martial law was instigated, shutting in the wells and helping bring back the present fair price, and if there is much more contracting of oil below the present price, everyone is bound to suffer the consequences of a cut in crude prices, and the small operator who helped bring on the reduction will suffer most, his one or more wells having a small allowable, and the oil from the well bringing a lower price to compensate him for his drilling and production expenses.

The highest daily production for the East Texas district since the field was opened up after the martial law shutdown, was on September 17 when the field produced a total of 432,158 bbls., specific proof that per well allowable will have to be cut back from time to time to keep the district's production under 400,000 bbls.

Salt Water in Western Gregg

Another western Gregg County well showed salt water and basic sediment this week, more clearly defining the western edge of the producing area. This well is the Continental Oil Co.'s No. 1 Crews on the north line of the L. Perkins Survey, south of Gladewater. It is southeast of the Sun Oil Co.'s No. 1 Walker, which is making 42 per cent basic sediment and water. The Continental well is making 20 per cent basic sediment and salt water. Total depth is 3,685 feet, bottom of the hole standing at a minus 3,331 feet.

Joiner Extension

The Mid-Kansas Oil & Gas Co. registered another southwestern extension to the Joiner Pool this week when its No. 1 Sharp in the M. De Los Santos Survey was completed at a total depth of 3,650 feet for an estimated 4,000-bbl. well. Top of the sand was cored at 3,646 feet. Surface elevation is 343 feet which places the bottom of the hole very near the water level. It extended production approximately 1 mile south in the extreme southeastern corner of Smith County, and only about three-quarters of a mile from the Cherokee County line, making that county look more favorable as eventually being added to the producing list of counties in the district. Last week the company completed its No. 1 Cross in the Cadene Survey, for a 2,100-foot southwestern extension of the field. It completed its No. 2 Cross this week at a total depth of 3,610 feet, four feet in the sand. The well was estimated good for around 4,000 bbls. oil daily.

The northern end of the producing area has been definitely established by the Mrs. Joyce Richardson and others' No. 1 Eva O'Byrne in the William Burton Survey, approximately 1 mile north of production in Upshur County, making 2 fourbles of salt water in 40 minutes on a drill stem test, making only 3 fourbles of oil at the same time. Total depth of the hole is 3,792 feet, only 4 feet in the sand, which precludes the possibility of extending production beyond this well. It was abandoned at this depth.

Reports from the field show distribution to have run better than 347,000 bbls. per day for the week ending September 16, about 72,000 bbls. daily going to steel storage in the district; 297,065 bbls. run by the trunk lines from the district; and 25,500 bbls. per day going to local refineries. Tank car shipments were a little over 24,500 bbls. per day, empty tanks cars standing on sidings in the district being "dead wood" on the railroads' hands, whereas prior to the martial law shutdown they were being rushed to the district for shipment, and were maintained on sidings by the hundreds for instant service at the many loading racks in the district. Long strings of them now stand idle along the rights of way.

The Cal-Tex Corp., a subsidiary of The Texas Company, has entered the East Texas district and has five locations staked in the Juan Peneda Survey, Upshur County, for drilling.

Taken Over by Gulf

The Gulf Production Co. took over the five-sixths interest that the Humble Oil & Refining Co. had in the following leases in Rusk County: Barksdale 76 acres in the Hollingsworth Survey, including two wells;; Cole 28 acres in the Hollingsworth Survey; Crim 42 acres in the George Berry Survey, including two wells; Cole 28 acres in the Hollings-Simms Survey, including four wells; Sexton 54 acres in the Cooper, Grace and McCabe Survey; Sexton 168 acres in the McCabe Survey. The Gulf Production Co. held a one-sixth interest in the leases prior to this purchase.

The Humble Pipe Line Co. had more connections than it desired and the Stanolind Oil & Gas Co. has taken over 15,000 bbls. per day which it relinquished. Sinclair Oil & Gas Co. continues to solicit connections.

Well on Fire

Another well caught fire this week in the district, Texas Oil & Royalty Co.'s (E. P. Campbell and others') in the David Ferguson Survey northeast of Gladewater in Gregg County. The well was producing some oil and water, with considerable gas, all of which was flowing down a gulley to the creek bottoms. The oil and gas was ignited in some way in the bottoms, the fire traveling back to the well, igniting it and burning down the rig. The well was supposed to be standing with 6⅝-inch casing cemented, and a die nipple was being attached to the top of the surface pipe, preparatory to bringing in the well when the cement set. Some were of the opinion that the gas oil and water was coming from an offset well which they said had damaged casing, the oil and gas penetrating through the water sand approximately 800 feet below the surface, flowing through this sand down to the well which is on fire, thence flowing up through the surface casing. Others were of the opinion that the gas and oil was coming from above the cement plug.

The well is spouting water, gas and oil, resembling a geyser as the gas is ignited above the casing and around the die nipple, part of the unburned oil and the water falling back to the ground and running down the hillside, the oil burning as it flows on top of the water. A contract was soon made to snuff it out, but it has not yet been extinguished. This is the seventh well to catch fire in the district.

EAST CENTRAL TEXAS WILDCATS

Week Ending September 21

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks:
Riango Oil Co.'s No. 1 J. Lynn, 1,400 ft. from NE line and 7,425 ft. from E line of survey, R. Brown Sur.	Fishing 2,755 ft.
H. B. McConnell et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in S half of 129-ac. tract, M. Main Sur.	Rig up and shut down.

ANGELINA COUNTY

R. O. Moore's No. 1 Abney Estate, 50 ft. N of Blk. No. 6, immediately out of city limits of Lufkin	T. D. 1,350 ft.; to recement csg.

BOWIE COUNTY

Tom Bell's No. 1 Merritt, 1,225 ft. from N and 875 ft. from E line of survey, T. S. McKinney Sur.	Drlg. 3,040 ft.
Logan and Elliott's No. 1 J. W. Smith, 9,600 ft. S and 2,500 ft. W of NE cor. of survey, Charles Lewis Sur.	Drlg. 3,604 ft.
Parkering-Jones et al's No. 1 W. W. Whybark, 200 ft. from S and W of SW cor. of J. A. Dyer Sur.	Drlg. 900 ft.
Lee Timberlake et al's No. 2 Julius N. Tidwell, 655 ft. from E and 2,510 ft. from S of survey in L. M. Rice Sur.	Salt water on drill stem test; shut down 3,012 ft.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, James Dill Sur.	Drlg. 1,000 ft.
Denman et al's No. 1 Mrs. Renfroe, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur.	Derrick.
Helen-Clare Oil Co.'s No. 1 Mrs. M. P. Perkins, 1,800 ft. from N and 450 ft. from W of survey, Thomas Stafford Sur.	Rig up.
William A. Stone's No. 1 Blount Decker, 900 ft. E of E line of S. Selman Sur. and 1,200 ft. S of N line of E. M. Decker 406-ac. tract in George Ruddle Sur.	T. D. 5,476 ft.; plugged back to 5,470 ft.; drill stem test; flowing salt water.
Walton Oil Co.'s No. 1 E. Singletary, 250 ft. W and 150 ft. N of NE cor. of M. Lacey Sur. and in Walters Sur. on Singletary 84-ac. tract	T. D. 2,960 ft.; shut down.

DALLAS COUNTY

Paris' No. 1 Wilkinson, 2,787 ft. from NW and 3,241 ft. from SW of John F. Anderson Sur.	Drlg. 1,141 ft. in sand.

DELTA COUNTY

D. S. Hood's No. 1 J. J. Balser, 185 ft. from S and 580 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur.	Shut down 1,559 ft.

ELLIS COUNTY

E. M. Roger's No. 1 John Lee Winn, 1,650 ft. from E and 510 ft. from S of Orland	Shut down 1,435 ft.

FREESTONE COUNTY

Raley and Clark's No. 1 McLancaster (Pampler), 150 ft. from E of W line and center of N and S line B. Avant Sur.	Derrick.

(Continued on Page 107)

COMPLETIONS IN EAST CENTRAL TEXAS

Gregg County

Charles Love and others' No. 1 Doby, derrick abandoned. Atlantic Oil Producing Co.'s No. 2 Hays, location abandoned. Alma Petroleum Co.'s No. 1 Cox, oil sand

(Continued on Page 105)

Sixth Deep Test in Big Lake Field

Western Crane County Test Logging Favorably. Another Producer Completed in Ward County. Cook Pool Opened

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Sept. 21.—Big Lake Oil Co. is now digging cellar for its sixth deep test in the Big Lake Field, Reagan County, the well to be known as its No. 6-C University, located 1,370 feet from the south line and 1,000 feet from the east line of Section 12, Block 2, University Lands. The company is rigging up its No. 4-C University to deepen.

Group No. 1 Oil Corp. and Continental Oil Co. have killed their No. 1-B University with mud in order to recondition it and drill deeper, if possible. Present total depth is 8,525 feet, the depth at which the well was completed in November, 1928, being the deepest cable tool producer at that time.

The two producing companies in the field have been deepening their wells and reconditioning them for some time, cutting down the daily average gas and oil flow in accordance with orders of the Railroad Commission, and to curtail production in the field.

Crane County Test Favorable

Southwest Oil Producing Co. and Penn Oil Co.'s No. 1 Tubb, NW Section 3, Block B-27, P.S.L. Survey, a most interesting test in western Crane County, is said to be logging favorably with the Cranfill Brothers and Gulf Production Co.'s No. 1 Tubb, the producer and discovery well to the south in Section 8. Salt was topped in the former named test at 493 feet, which is 44 feet higher than the discovery well. The test in Section 3 is now standing shut down with casing cemented at around 700 feet.

A test drilled to the south of the Tubb discovery was abandoned as dry a few months ago, but it is generally believed that big production and a big field will be proven to the northwest of the discovery, consequently the Penn test is an interesting one, and will be closely watched and compared with the discovery well. The Gulf Production Co. owns a large block in this area, but is not intending to develop it at this time. The Shell Pipe Line Co. is connected with the discovery well. This well was completed for 100 bbls. per day after plugging back from 5,336 feet to 4,335 feet, and given a shot of 100 quarts from 4,319-4,279 feet. It had an elevation of 2,526 feet and topped salt at 505 feet, and white lime at 2,455 feet. Pay was topped at 4,295 feet.

New Ward County Well

Clyde Bradford's No. 1 York, in Section 10, Block 34, H.&T.C. Survey, added another producer to Ward County this week when it was completed for a 15-bbl. well through 8-inch casing, at a total depth of 2,503 feet. Ward County has been the most active area in the Permian Basin during the past five months, seeing the completion of one or more wells each week, adding to the number of producers in the Grand Falls, Shipley or O'Brien Pool, or extending production between the Shipley and Bennett Pools in the T-P area.

West Texas Distribution

Distribution in West Texas gained approximately 3,500 bbls. per day for the period ending September 9, total daily average distribution running 258,871 bbls. while production averaged only 206,200 bbls., a difference of 52,671 bbls. Pipe line runs averaged 232,673 bbls. per day of this amount; runs to local refineries averaged 24,998 bbls. and tank car shipments averaged 1,200 bbls. The greatest increase was in pipe line runs, gaining over 2,200 bbls. per day. Distribution being over 52,671 bbls. above daily production shows a large withdrawal from storage, as has been the case during the past few months.

A. T. Knies, vice president of the Texas Public Service Co., which now has a 10-inch gas line from the Big Lake Field (Reagan County) to San Angelo, has been conferring with Big Lake citizens on the possibility of furnishing that city with gas. A scrubbing plant costing in the neighborhood of $100,000 may also be constructed in the Big Lake Field to treat the sulphur gas, preparing it for domestic use in the towns which are supplied with gas from the deep wells of the field. Mr. Knies has his office in Austin, Tex.

WICHITA FALLS

The Deep Oil Development Co. has drilled the deepest test in North Texas, its No. 5-A Wilson in the Chalk Hill Pool, Archer County, now standing at 5,500 feet, preparing to deepen to 6,500 feet or deeper. It has already logged three saturated sands, but in hopes of picking up heavier saturation has been sunk below these. If other and better sands are not encountered it will be plugged back to the Ranger deep lime and given a shot at around 4,900 feet. If it does not produce from this stratum it will then be plugged back again to 3,600 feet, the deepest producing horizon in the county, and will be completed at that depth.

RANGER DISTRICT

Roeser and Pendleton, associates of the Continental Oil Co. in 260 producers in the Cook Pool, Shackelford County, reopened these wells on September 15 after two and a half months shut down. The wells will be allowed to produce only 4 bbls. per well daily, which will add around 1,400 bbls. daily to North Central Texas production. The Humble Oil & Refining Co. has several wells in the pool, and Roeser and Pendleton have 60 wells of their own. The Humble Pipe Line Co. will run the oil at the posted price which is around 60 cents per barrel at the present time. When the wells were shut in it was worth only 37 cents, ample proof that a shut in was of great value to the owners, and a profitable move.

PANHANDLE DISTRICT

The Phillips Petroleum Co. has returned to the scale of posted prices in the Panhandle district after raising the price some time ago, but not being followed by other purchasers in the district. The company obtained many connections by increasing the price and will hold these connections. The price was cut from 7 to 14 cents per barrel in the district. In Carson, Moore and Hutchinson Counties it will pay 41 cents for 35 gravity, 43 cents for 35-35-9 gravity with a 2-cent differential to 40 gravity and above, making top price 53 cents. For Gray County crude it will pay 46 to 58 cents per barrel according to gravity, making a cut of 14 cents per barrel.

For several months the Phillips Petroleum Co.'s subsidiary in the district withdrew from purchasing oil in the district, but a few months ago the parent company renewed these activities and took over many connections, giving connections to many unconnected wells and helping out the district to a great extent, later raising the price of the crude, thereby increasing the aid given the operators in the district. Other purchasers, however, did not follow the lead of the Phillips company, consequently it had to drop back to the original posted price which is being paid by the other purchasers in the district.

COMPLETIONS IN PANHANDLE DISTRICT

Gray County

The Panhandle advisory committee has been disbanded following the recent laws passed giving the State the right to con-

(Continued on Page 104)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending September 21

Company, well, farm name, section and block—	Remarks:
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	Shut down 2,900 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles south Alpine	Shut down 1,750 ft.
COCHRAN COUNTY	
Penn Oil Co.'s No. 1 Myrick, C Labour No. 40 of League 129, Carson County School Lands	Drlg. 1,325 ft.
CONCHO COUNTY	
Beesley et al's No. 1 Waring Estate, 400 ft. from N and E Sec. 163, T.&N.O. Sur.	Shut down 267 ft.
Betts & Dennis' No. 1 H. E. Woods, 710 ft. from E and 150 ft. from S Sec. 3, H.E.&W.T. Sur.	Shut down 80 ft.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Shut down 1,850 ft.
CRANE COUNTY	
Southwest Oil Prod. Co. (Cranfill Bros.) & Penn Oil Co.'s No. 1 J. B. Tubb, 330 ft. from N and E of SW cor. of S 80 acres of NW cor. Sec. 3, Blk. B-27, P.S.L. Sur.	Drlg. 1,425 ft.; small show gas 1,400-08 ft.
CROCKETT COUNTY	
Doleman & Moore's No. 1 Ferner, 2,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and shut down.
CULBERSON COUNTY	
Kornrumpf et al's No. 1 Garren, 330 ft. S and W Sec. 15, Blk. 79, Public School Land	Shut down 1,280 ft.
DAWSON COUNTY	
Albaugh et al's No. 1 Robinson, C NW Sec. 46, Blk. M, E.L.&R.R. Sur.	To resume drilling.
ECTOR COUNTY	
Weekly Oil Corp. et al's No. 1 Cowden, 1,980 ft. from N and W Sec. 32, Blk. 43, Twp. 2s, T.&P. Sur.	Moving in material.
H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW Sec. 16, Blk. 46, Twp. 3s, G.M. M.Br.&A. Sur.	Shut down 3,280 ft.
EL PASO COUNTY	
Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.P. No. 7,347	Shut down 1,693 ft.
FISHER COUNTY	
Cranfill & Reynolds' No. 1 George, 400 ft. from N and 350 ft. from E. Sec. 200, Blk. 1, B.B.&C. Sur.	Drlg. 2,475 ft.
The Texas Company's No. 1 Daniels, 357 ft. from S and 330 ft. from W lines of Sec. 194, Blk. 1, B.B.&C. Sur.	Total depth 2,222 ft.; straightening crooked hole.

(Continued on Page 106)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending September 21

Company, well, farm name, section and block—	Remarks:
CARSON COUNTY	
El Paso-Amarillo O. & G. Co.'s No. 1 Champan, 594 ft. S, 1,458 ft. E, Sec. 7, Blk. 3, A.B.&M. Sur.	T.D. 3,141 ft.; ran 8-in. csg.
Empire G. & F. Co.'s No. 1 Poling, 1,320 ft. S and W, Sec. 28, Blk. Y-2, T.T.R.R. Sur.	S.D. 2,725 ft.; T.P. 2,515 ft., 12,800,000 ft. gas.
Magnolia Pet. Co.'s No. 1 Connell, 330 ft. N and E, SE, Sec. 66, Blk. 4, H.&G.N. Sur.	Drlg. 1,410 ft.
Texhoma Nat. Gas Co.'s No. 1 Harrison, center NW, Sec. 40, Blk. 4, I.&G.N. Sur.	Location.
Texhoma Nat. Gas Co.'s No. 1 McLaughlin, center NW, Sec. 61, Blk. 4, I.&G.N. Sur.	Location.
Texhoma Nat. Gas Co.'s No. 2 Schoffer, center SE, Sec. 64, Blk. 4, I.&G.N. Sur.	Location.
CHILDRESS COUNTY	
C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.
The Texas Company's No. 1 A. S. Daver, 1,335 ft. from N line and 656 ft. from W line, Sec. 81, Blk. 4, I.&G.N. Sur.	Location.
COLLINGSWORTH COUNTY	
Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur.	S.D. 2,508 ft.
Downey et al's No. 1 Beasly, SE cor. SW SE, Sec. 95, Blk. 15, H.&G.N. Sur.	Rigged up.
GRAY COUNTY	
Anderson et al's No. 2 Vollmert, 330 ft. N and W, SW, Sec. 140, Blk. 2, I.&G.N. Sur.	Rig.
Back & Barber's No. 1 Back, 660 ft. from S and 330 ft. from W. Sec. 140, Blk. 25, H.&G.N. Sur.	Moving in tools.
Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 85, Blk. 25, H.&G.N. Sur.	Spudded and S.D.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur.	Drlg. 1,235 ft.; carrying 8-in. csg.
Humble O. & R. Co.'s No. 1 Hughey, C NE, Sec. 154, Blk. 3, I.&G.N. Sur.	Killed gas to fish; T.D. 2,726 ft.
Parton Holt and Shell Pet. Corp.'s No. 1 Morse, 330 ft. S and E, Sec. 6, Blk. 26, H.&G.N. Sur.	Driving 12-in. csg. 185 ft.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur.	S.D. 2,730 ft.
Magnolia Pet. Co.'s No. 1 Heaston, NE cor. S½ NE, Sec. 164, Blk. 3, I.&G.N. Sur.	Rig on ground.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 26, H.&G.N. Sur.	S.D. 2,619 ft.
Nipper et al's No. 1 Morse, 330 ft. from N and E, Sec. 1, Blk. 26, I.&G.N. Sur.	Cellar.
Saunders et al's No. 2 Sullivan, 822 ft. from W and 331 ft. from NE, 160 ft. S, 264 ac. of N½, Sec. 136, Blk. 3, I.&G.N. Sur.	Will plug back to 3,275 ft. and shoot.

(Continued on Page 106)

Five Worthington 24" x 13" x 36" Twin-Tandem Gas Engine Compressors in the Beatrice, Nebraska, Station of the Amarillo-Chicago Natural Gas Line. This line is approximately one thousand miles long and will have a capacity of 175,000,000 cu. ft. per 24 hours.

57 WORTHINGTON GAS ENGINE COMPRESSORS *for the World's Largest Natural Gas Line . . .*

THIS equipment, now being installed in the field station and the nine line stations of the Amarillo-Chicago Natural Gas Line, represents the largest single order ever placed for gas-engine-driven gas compressors . . . 74,100 brake compressor horsepower.

The selection of Worthington equipment for this line is a significant recognition of the reliable service which similar Worthington units have rendered on other lines during the past thirty years. This tribute to Worthington design and Worthington performance records speaks for itself.

It has been a privilege to work with the engineers and executives of the Continental Construction Corporation in the development of this interesting and important project.

PUMPS *All Sizes...All Types For All Services Any Capacity...Any Pressure*	COMPRESSORS *Stationary and Portable*
CONDENSERS and Auxiliaries	ROCK DRILLS
DIESEL ENGINES	AUTOMATIC HEAT TREATING MACHINES FOR DRILL STEEL
GAS ENGINES	FORGING FURNACES FOR DRILL STEEL
FEEDWATER HEATERS	DRILL STEEL
WATER, OIL and GASOLINE METERS	ACCESSORIES
MULTI-V-DRIVES	CHROMIUM PLATING

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EGR-11

WORTHINGTON

Every Precaution Taken to Eliminate Clogging of New Chicago Gas Line

* * * * * *

By W. T. Ziegenhain

The chance of clogging the new 24-inch natural gas line from the Panhandle of Texas to Chicago will be eliminated as far as present-day engineering knowledge has made it possible, by subjecting the gas to worse conditions of pressure and temperature than it is expected to encounter at any point along the line. To accomplish this the Texoma Natural Gas Corp., the operating company for the Natural Gas Co. of America, is building a high-pressure gasoline absorption plant and a gas cooling plant at Fritch, Tex., the origin of the line and has incorporated in their design features which have never before entered into gasoline plant operations.

The complete exclusion of water vapor has been the problem of the engineers responsible for the design of the plant. A slight trace of water in the gas, as it travels through the line would ultimately cause a sufficient accumulation of water in low places to induce clogging. The danger is not so great from the presence of the water itself but accompanying the water might also be found a layer of condensed hydrocarbons such as butane.

Because the line will operate at 600 pounds pressure and will traverse a distance of 900 miles there are many chances for a pocket of water to form.

A relatively slight pressure drop would induce the conversion of the butane back into a gas and in doing so would cool the pocket zone. Some water vapor might be picked up or if any water vapor was already contained in the gas, a frost would collect on the sides of the pipe. Any prolonging of these conditions would cause enough frost to accumulate to materially reduce the gas flow if not eventually clog the pipe entirely. It is with the idea of safeguarding against this that the company, through the Continenral Construction Co., has provided some unusual equipment.

Large Gas Volume

The Fritch plant might best be divided into two parts instead of attempting to consider it as a natural gasoline plant. The function of one unit is to remove the heavier hydrocarbons while

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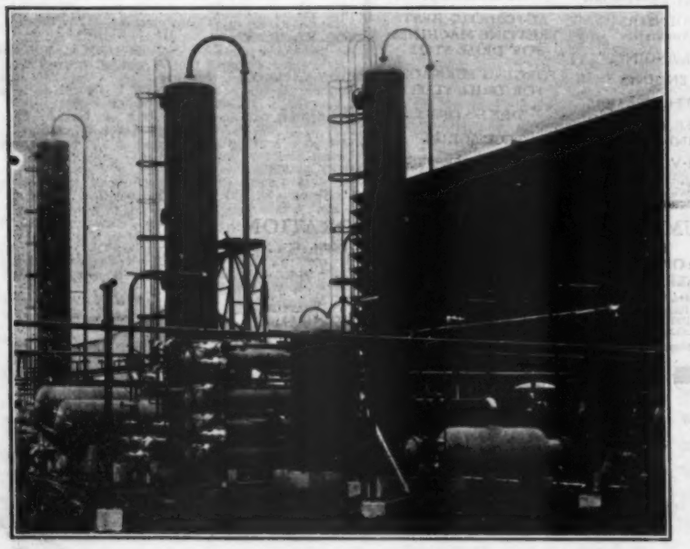
the other unit removes water and oil particles. Until the plant is placed in operation the exact and detailed procedure of operation remains indefinite but a general discussion of the principles involved might prove interesting. The natural gas will be delivered to the absorbers from the compressors at about 610 pounds pressure. Capacity has been provided for the processing of 192,000,000 feet per day as a regular schedule. The absorbers have been designed to take 220,000,000 feet at 520 pounds in order to soon "pack" the line after starting up. There are four absorbers operating in parallel. The great bulk of the gas passes through the absorbers as a permanent gas but from 7,000,000 to 8,000,000 feet of it is expected to be absorbed in the oil.



General view of the absorption plant. All equipment has been made exceptionally heavy to withstand the 600-pound operating pressure.

Part of the equipment being installed in the Fritch, Tex., plant for the conditioning of the gas to be transported by pipe line to Chicago. In these exchangers liquid propane will be expanded to cool the gas to 40° F. and will thus free the gas of all water vapor and oil particles. The coolers will operate at 610 pounds pressure.

* * * * * * * *

Because of the deviation from the accepted gas laws when absorbing petroleum gas mixtures at high pressures, approximately the same volume of oil will be required to remove the butanes and heavier at 600 pounds pressure as at 300 pounds pressure and for this reason the volume of oil to be circulated will appear high.

Experimental work done by the Empire Oil & Refining Co. and the Jackson Engineering Co., at Bartlesville, Okla., has shown the extent of the deviations and subsequent work at the Massachusetts Institute of Technology has proven the existence of these deviations.

Mindful of the inconsistencies in the behavior of a mixture of methane, ethane, propane and butane when compressed to 600 pounds pressure considerable flexibility was provided in the design of the unit and a vapor fractionator was provided as a unique feature to supply this control.

From the absorbers, the enriched oil passes through four heat exchangers, a pressure reducing valve and enters a column filled with baffles. The pressure here is maintained at 225 pounds. The reduction in pressure allows a partial release of the gases absorbed in the oil but more of the gas is liberated by withdrawing and heating the bottoms. This is accomplished by continuously pulling the oil off the bottom of the fractionator and passing it through a reboiler. Any gases that are liberated reenter the fractionator. The tower is controlled by a return reflux. The gas leaving the tower is a mixture of methane, ethane, propane and some butane. The relative proportions of butane permitted will have to be determined later, and will of course vary with the atmospheric and pressure conditions to which the line is exposed.

The enriched oil which has been only partially degassed is led into a conventional steam heated still where the oil is completely freed of the gas. Approximately 1,000,000 feet of gas is expected to be recovered at this point and this will be brought up to 225 pounds pressure and returned to the vapor fractionator. The still will operate at about 50 pounds pressure.

The gas passing through the absorbers and that which comes from the vapor fractionator pass into a common line and are next cooled to about 40° F. by expanding liquid propane.

As the gas enters the cooling system it will approximate 95° F. in temperature. After passing through a series of exchangers in which the gases are cooled by the expanded propane the temperature will be reduced to about 50° F. The gas then will enter a second series of exchangers into which liquid propane is expanded and here the gas will be reduced in temperature to 40° F.

The spent propane returns to the compressors through the first series of exchangers as stated previously, and is again recycled through the system as the refrigerant.

Propane is used simply because it is manufactured there at the plant. It operates on a principle almost identical to that of the direct expansion ammonia system and is separate from the gasoline plant except that it gets its supply of propane from it.

Extremes of Conditions

By reducing the entire gas volume to 40° F. while holding a pressure of 610 pounds on the system, the company expects to remove any trace of water vapor and heavy hydrocarbon fractions that are contained in the gas after passing through the absorbers. In addition, the conditions here are such as to remove any oil that is carried over from the absorbers.

It has been found that considerable oil is carried over with the gas due to the fact the gas is so dense. Under these high pressures the oil is soluble in the vapor and it is necessary to provide more than a fractionator to effectively separate the two. This will be accomplished in the propane exchangers.

Conditions in Line

The line from Fritch, Tex., to Chicago will be buried several feet in the ground, some variation being made in accordance with local conditions. At no point is it expected that the temperature of the gas will be below 40° F. Similarly, the operating pressure of the line will be below 610 pounds and because of this there will be no point along the line where pressures will be encountered that will induce liquefaction beyond the conditions the gas has already passed through at Fritch.

WORLD SITUATION IS DISCUSSED BY N.P.A.

(Continued from Page 20)

States exports in 1931 will probably be in the neighborhood of 341,000 bbls. a day—an increase of only 76 per cent in 11 years. Foreign consumption is increasing at a fairly steady pace with foreign production following the same general trend. A great part of the increased consumption is due to the growing use of the automobile. Ten years ago there were 1,700,000 motor vehicles registered in foreign countries; at the end of 1930 there were 9,000,000, an increase of 434 per cent. This compares with an increase of 187 per cent during the same period in the United States. In the last five years motor vehicles increased 97 per cent abroad and only 33 per cent in the United States.

"During 1921 the United States, through its exports, supplied 29 per cent of the foreign demand. This increased in 1924 to a little over 35 per cent. Since then, except for the year 1926, the percentage supplied by the United States has shown a steady decline. In 1930 the United States supplied 27 per cent of foreign consumption; this year its share will not be over 20 per cent. This country is losing its export markets and will continue to do so. There is no lack of supply of foreign crude and it is now permanently in competition with that from United States fields."

Refineries Abroad

There are a total of 351 refineries outside the United States, with daily crude capacity aggregating 1,771,700 bbls., Mr. Bauer said, with 14 additional plants building, of which 2 are in Canada, 1 in Argentina, 1 in Germany and 10 in France, not taking into account Russia, where definite data on new refinery construction are lacking.

Summarizing the export market outlook, Mr. Bauer concluded: "The statistics which I have given certainly indicate a decided trend toward lessened movement of both crude oil and products from the United States to foreign markets. The dislocation of foreign trade balances has led some nations to encourage the establishment of their own refinery operations through the imposition of tariff barriers. Such artificial stimulants to home industry offset, perhaps, the greater ability or other advantages of exporters who have carried the business to its present advanced state. Against this somewhat gloomy estimate it should be set out that a large part of the world is still woefully behind in its per capita consumption of petroleum products. If other nations used a small part of the per capita consumption of the United States there would not be enough oil today to meet the demand. Therefore I think it reasonable to expect that as the standard of living rises the world over there will grow with it such an increase in demand as to make the new competition of foreign fields and foreign refineries welcome rather than a menace."

Russia Big Factor

Col. George A. Burrell of the Burrell-Mase Engineering Co. warned the American oil industry that Russia is in the competing picture on a strong basis, and will continue a factor in world markets. The observations of Colonel Burrell, a trained petroleum technologist, who recently returned from an 18 months' stay in Russia, aroused keen interest. He described Soviet Russia as a great competing nation out to show capitalistic nations how things should be done. The U. S. S. R., he said, has made a good start, but has yet to demonstrate the efficiency of their theories, policies and doctrines in world competition on a business basis. The Soviet, he said, has stressed the petroleum industry particularly, as one requiring little initial outlay and capable of raising ready cash in foreign markets to finance additional development in this and other industries in Russia. The remainder of the world has been virtually immune from Russian competition during the past 10 years, he said, and many industries have been prone to forget the existence of Russia as a potential competitor in world markets. But with the Soviet's plans for industrial rehabilitation progressing, Russia is coming back into world markets strong, and will have to be reckoned with, he stated.

Russia will ship approximately 175,000,000 bbls. of petroleum and products this year, Colonel Burrell said, and shipments will increase as the construction program of the Soviet progresses. Present petroleum deposits, he said, are being extensively worked, and despite an extensive wildcatting program, Soviet geologists have as yet failed to develop any new pools of major importance. There is a strong possibility, however, he added, that this exploration campaign may yet bring to light important new Russian oil reserves.

Colonel Burrell sounded a note of optimism on the Russian competition question when he said that increasing domestic consumption of products in Russia will probably absorb much of the Soviet's increased production.

Lack of trained personnel is seriously handicapping the development of Russia's petroleum industry, he said, and at present products are being turned out at very high costs. When the time comes that these operations will have to show a profit, and Russia takes her place in the world oil market on the basis of a competing nation operating upon an economic basis, the era of price cutting on Russian refined products should end, Colonel Burrell inferred.

Present refinery operations in Russia, Colonel Burrell concluded, are not entirely satisfactory, considerable difficulty being experienced with the quality of the motor fuel produced, most of which does not run over 30 octane rating. Plans are under way, he said, for new vapor-phase cracking installations at major Russian refineries to improve the quality of gasoline output.

H. L. Doherty Speaks

Henry L. Doherty sounded a gloomy note on the outlook for recovery of oil, although his address, largely informal, was otherwise brimful of the Doherty humor, and kept the capacity crowd which turned out to hear his talk in a laughing mood. Mr. Doherty stated that the oil industry for the past 10 years has been "hell plus" and added that it was getting no better. He reviewed the question of unit operation from the time this plan was first suggested by him in 1916, and spoke briefly on a number of other controversial matters which have kept him in the market limelight for many years, including his controversy regarding some of the phases of the operation of the American Petroleum Institute. He received an ovation at the close of his address when he stated that while he is not now "the man to play Moses to lead the petroleum industry out of its wilderness," he stands ready, in the event that a committee of three or five men can be chosen, with the solid backing of the industry, to devise a plan for putting the industry on a sound basis, to extend his whole-hearted support and co-operation to such a group.

Maj. "Jimmie" Doolittle, the speed king of American aviation, appearing on the program as a representative of the Shell Petroleum Corp., outlined in interesting fashion recent developments in commercial aviation. He stressed the importance of the use of quality fuels and lubricants in airplane operation and declared that, from the standpoint of actual operating costs and maintenance, the most expensive grades of aviation gasoline and motor oils had been proven under actual service conditions to be the best and cheapest in the long run.

President Lyons' Address

E. M. Lyons, president of the National Petroleum Association, in his annual address suggested more attention on the part of members to the organization's bulletins and activities. Many of the problems of individual members, he said, could be solved or greatly lessened by keeping abreast of association work. He advocated a close watch on the statistical position of products markets, particularly lubricating oils, and said that developments of the past several years have shown conclusively that growing stocks inevitably mean falling prices.

Joseph E. Pogue, well-known New York consulting engineer, in an interesting address attributed most of the present ills of the industry to the huge "invisible inventory" of crude as represented by the enormous proven, but shut-in production, in the country's major fields. He suggested continued curtailment of refinery operations, and advised the refiners that it would be very much to the advantage of the industry and to their own companies if gasoline stocks could be reduced to a maximum of 40,000,000 bbls. by April 1, 1932. He warned against continued heavy refinery runs at this time, in the face of the

—Photo by Fred Hess & Son.

Members of the National Petroleum Association at the annual banquet, Hotel Traymore, Atlantic City, September 17.

pending seasonal curtailment in consumption.

"Artificial interference with the orderly working out of economic law is a dangerous experiment," Mr. Pogue said in part. "And certainly events of the past two years have tended to confirm this statement. Yet there is nothing inherently unsound in such efforts, if undertaken with skill and wisdom and conducted with due regard to immutable fundamentals. The hazard lies not in the absence of knowledge as to how, for example, production can be scheduled and controlled, but in the pervasive presence of the human elements of ignorance and cupidity that set the efforts of reason at naught. If these human failings can be mastered, the course of the industry can be directed with enlightenment and progress. Unless and until they can be, the artificial factor in industry is more apt to prove a boomerang than a catapult."

Antitrust Laws

James A. Emery, general counsel for the National Association of Manufacturers, delivered a somewhat lengthy address on "The Antitrust Laws and American Business." He advocated a more sympathetic understanding on the part of the Government toward the problems of business, and greater flexibility in the interpretation and operation of the antitrust laws in times of economic stress. In his summary he said: "Uncertainty is the brake upon depressional recovery. Men in doubt do not act. Is it not, therefore, wise to provide the means of dispelling doubts which prevent concerted action essential to the control of overproduction?

"It is in the public interest to ascertain with the co-operation of the Department of Justice, in any litigation which clearly presents the issue, whether or not concerted co-operation among competitors to control, within rational limits, a chronic condition of overproduction is a restraint of trade or a protection and promotion of commerce.

"The rational adjustment of supply to demand through co-operative action requires the frank and sympathetic association of government and management. It cannot be accomplished by arbitrary prohibition or force. It requires conformity to ascertained economic facts. Industry cannot put its house in order through prolonged litigation. Undue delay is as disastrous as inaction. Government cannot contribute to essential adjustment by arbitrary exceptions or the urging of private control of production in particular industries while forbidding it in others. Voluntary private co-operation to control drastic overproduction under administrative supervision, protecting the public against artificial restriction, can alone accomplish the desired result. The national resource industries are the obvious area for immediate application of such a policy. The President and official commissions recognize and recommend it. The existing situation demands it."

Questions of more intimate interest to the oil men present were taken up at the closing session.

Refining Developments

D. G. Brandt, of the Crew Levick Co., delivered an interesting talk on recent developments in refining methods at this session. Volatility is now secondary to octane number as the chief factor in gasoline, and motor fuel today is an entirely different product from that of a few years ago, he said. "Most of the recent development from the refiner's point of view has been in motor fuel and its production," Mr. Brandt said. "With the overproduction of crude and increased amount of cracking, the volatility of the gasoline was increased to a point where vapor lock became one of the major troubles of the motorist." Engine design and construction, he said, has lagged behind improvement in motor fuel quality, and the refiner has now developed an ideal motor fuel only to find out that the average automobile of today cannot use such volatile gasolines on account of vapor lock. "Thus," he said, "the motor fuel being supplied today is a compromise and will of necessity be such until the present cars are replaced with cars equipped with proper designed fuel feed systems in which all heat is kept away from the fuel until after it reaches the carburetor.

"During the past year the industry has put the new yardstick for measuring the antiknock quality into use; that is, the octane number is being used in specifications and like all new tests is much in the foreground. Volatility which had been considered the most important property of a motor fuel is now in second place and octane number has replaced it. As yet there has been very little work done on the correlation of engine performance in road tests with various octane number fuels. This must be done before the true value and limitations of the tests can be established.

"The highly competitive situation in the gasoline market has forced the refiner to continuously raise the octane number of the regular grade of gasoline until the average difference between the regular grade and premium fuels is approximately 9 octane number and in many cases lesser differences are indicated. Thus we find the gasoline of today is a very different product from a few years ago and the equipment necessary to produce such fuels requires large plant investments and continuous research to meet the specifications from the various types of crudes available."

Lub Oil Situation

John D. Gill, of the Atlantic Refining Co., delivered a talk on the lubricating oil situation, stressing the fact that the industry has never had the necessary yardstick, in the shape of comprehensive statistics, whereby it might gauge its operations. The petroleum industry, he said, derives more than $300,000,000 annually from the sale of lubricants for automobile consumption, and yet has been too busy with the major problems of crude and gasoline to give lubricants necessary attention. "We as an industry," he said, "are too big to operate only a two-ring circus, and I use the word circus advisedly." He advocated the compilation and distribution of more detailed data on consumption of the more important grades of lub oil individually, rather than collectively, as at present. The lubricating oil group, he said, includes both oils costing not over 1 cent a gallon to process and likewise oils costing 50 or 60 cents per gallon for processing, yet all are grouped collectively for statistical purposes. Lubricating oil sales, he said, are estimated to comprise 10 per cent of the industry's total refined products sales, in dollars and cents, and as such are entitled to more attention from refiners, and classification as the third major product of the industry.

A regular report on industrial lubricating oil consumption, Mr. Gill said, would be an invaluable index for use in determining the actual state of industrial activity, and similar reports on other grades may disclose the fact that the oil industry may be losing some of its lubricating oil markets without being aware of the transition. Such a situation, he said, has already developed through the steady decrease in the use of large engines in factories, and the substitution of large turbines in central stations for the supplying of power. Such a large central installation, he said, may supplant as many as 100 individual engines of 100 horsepower each, and yet not use more lubricating oil than one of the displaced engines. Industrial lub oil consumption, he estimated, is declining at the rate of 2 per cent per annum, while automobile lub oil consumption is gaining at the rate of but slightly over 2 per cent per year.

Officers Re-elected

E. M. Lyons, president, and all of the other retiring officers were re-elected for the ensuing year. The roster of officers follows: First vice president, P. B. Tarbox; second vice president, N. H. Weber; general counsel, Fayette B. Dow; traffic attorney, Willis Crane; attorneys, Horace L. Lohnes and Harry S. Elkins; recording secretary, Herbert G. Eaton; assistant recording secretary, E. W. Smiley; treasurer, G. B. Hunter. The board of trustees was expanded from 19 to 21, the new members being C. J. Leroux of the Valvoline Oil Co. and O. D. Robinson of the Republic Oil & Refining Co. Other trustees, all of whom were re-elected, follow: H. B. Carpenter, Ohio Oil Co.; Fred G. Clark, Fred G. Clark Co.; Sheldon Clark, Sinclair Refining Co.; Earle M. Craig, Freedom Oil Works Co.; G. C. Davison, Tri-State Refining Co.; Frank B. Fretter, National Refining Co.; W. V. Hartmann, Gulf Refining Co.; W. T. Holliday, Standard Oil Co. of Ohio; O. P. Keeney, Keeney Oil Co.; Otto Koch, Kendall Refining Co.; H. A. Logan, United Refining Co.; E. M. Lyons, Tiona Refining Co.; A. W. Scott, Wolverine-Empire Refining Co.; C. G. Sheffield, Standard Oil Co. of New Jersey; C. L. Suhr, Pennzoil Co.; P. S. Tarbox, Independent Refining Co.; N. H. Weber, Pure Oil Co.; A. C. Woodman, Richfield Oil Corp. of New York; R. A. Wotowitch, Henry L. Doherty & Co.

A feature of the convention was the meeting at the Traymore on Wednesday afternoon of the eastern and southeastern code of ethics groups, under the direction of William R. Boyd, executive vice president of the American Petroleum Institute, and Paul Hadlick, in charge of marketing and code work for the institute. The meeting was largely attended.

Another group meeting which attracted a full attendance was a round table discussion on the lubricating oil situation. This meeting was held on Thursday afternoon under the chairmanship of Fayette C. Dow, general counsel for the association, and included a general discussion of the present status of lub oils, marketing problems, etc., with particular reference to bright stocks in which a majority of the members of the National Petroleum Association are closely interested.

The annual banquet of the association, held at the Traymore on Thursday evening, attracted about 100 members and guests, Dr. Edward J. Cattell of Philadelphia being the speaker of the evening. The banquet and entertainment were arranged by a committee consisting of C. H. Longshore, chairman, and Fred G. Clark, L. C. Jamieson and H. L. Lohnes.

GLADEWATER WELL SHOOTING FLAMES AND LIQUID

E. P. Campbell and others' No. 1 Mollie Finn on fire near Gladewater in Gregg County. The well is spouting oil, gas and water, making heads like a geyser, shooting flames and liquid high into the air, then subsiding to but a few feet above the top of the joint of 10-inch casing which stands above the hole.

WORLD CONFERENCE TO DISCUSS OIL SUBJECTS

Subjects of interest to the oil and gas industry are included in the tentative list of papers to be presented at the third international confeernce on bituminous coal, at the Carnegie Institute of Technology, Pittsburgh, Pa., November 16 to 21. Dr. Thomas S. Baker is in general charge of the conference and president of the institution sponsoring it. The preliminary program contains the names of almost 100 speakers. The papers have been classified into 12 major sections. Seventeen countries will be represented and an attendance of more than 2,000 persons is expected.

Among papers dealing with some phase of the oil and gas business are these: "Early History of Hydrogenation," Dr. Frederick Bergius, Germany; "Catalysts in Hydrogenation Cracking," Andre Kling and Daniel Florentin, France; "Catalysts for High-pressure Reduction and Hydrogenation of Phenols and Hydrocarbons," Dr. Hans Tropsch, Czechoslovakia; "Synthesis of Lubricating Oils From Coal and Its Gaseous Products," Professor A. W. Nash, England; "Simultaneous Cracking, Carbonization and Gasification of Coal and Oils," G. Egloff and A. Fisher, United States; "Formation and Combustion of Hydrocarbons," and "Origin of Coal—Artificial Production of Substances Similar to Bituminous Coal and Petroleum," Dr. Ernst Berl, Germany; "Competition Between Natural Gas and Coal," R. B. Harper, United States; "Interrelationships of Coal, Petroleum and Natural Gas," Dr. W. T. Thom, Jr., United Stanolind Oil & Gas Co., both 100 per States.

Arc Welding As Applied to Oil Industry

Solution of Chemical and Metallurgical Problems Big Factor in Rapid Growth of This Type of Work

By J. C. Lincoln
Chairman of the board, The Lincoln Electric Co., Cleveland, Ohio*

The improvements in the electric arc process during the past few years, the results of research and experiment, are reflected in the new economies and efficiencies possible to the engineers in the petroleum industry. Twenty-two years ago arc welding ceased to be a laboratory toy, five years ago it was applied for the first time to petroleum transmission line construction, and in the past year and a half many thousands of miles of pipe line have been fabricated by the arc weld process.

The great spread of arc welding in the oil industry, during the past two years is due mostly to the solution of certain chemical and metallurgical problems raised by phenomena within the arc itself.

The greatest temperatures known to man are secured in the crater of the arc. All known substances will vaporize at this heat.

For years, welds made with the electric arc, although equal in physical qualities to welds made by any other method, were characterized by an oxidation which caused comparatively low ductility and a tensile strength somewhat less than the ordinary mild steel plate. This was caused by the natural attraction of molten steel in the arc for oxygen and nitrogen in the ambient atmosphere. This oxygen and nitrogen combined with elements in the steel to form oxides and nitrides. It was obvious that to improve these qualities the arc should be shielded from these gases in the air.

Early efforts to weld in a shielded arc were tedious and costly but continued research and experiment have produced a process which is economical and swift either with automatic or manual welding.

The electrode used for manual welding is heavily coated with a special composition material which burns, in the arc, slower than the metal melts, and forms, in effect, a crucible which shields the arc for most of its length. As this coating burns it gives off probably carbon monoxide and carbon dioxide and not only shields the arc, but actually improves the physical quality of the steel.

That is why, with the various shielded arc processes, we secure welds of 65,000 to 80,000 pounds per square inch tensile strength, and ductility and resistance to corrosion greater than rolled steel. Furthermore shielding the arc allows higher welding current and consequently much greater speed. In 1927 it required approximately one hour to weld a 16-inch pipe line joint with two beads. Today it can be done in less than 10 minutes, although we figure conservatively one minute per inch diameter of the pipe per joint.

For oil pipe lines the double bell joint with the backing up ring is commonly used. The length of this ring varies with the particular design. This double bell type of joint is used in order not to decrease the inner diameter of the pipe.

For gas transmission butt end pipe with a backing up ring is frequently used. Experience in the field has shown the double bell joint to be a most successful method, but even today we know of petroleum lines in the East Texas Field in which the connections are plain butt end pipe without a backing up ring. A clamp is used to line up these sections for welding with a collapsible backing ring and the report is that this procedure is working out very well. The pipe is lined up on rollers so that it can be turned beneath the arc when welding, and where the backing up ring is used, it is fitted into the stationary section and tacked while the line-up gang moves the next length of pipe into position and fits it up over the backing up ring. Tack welds are usually made with one-quarter-inch electrodes. These welds, about 2 inches long, are spaced equidistant around the pipe.

The firing line gang follows the tacking crew. The firing line gang consists of three to five units, each unit being composed of a welding operator and two helpers. Each unit has its own welding equipment which is moved along the line usually by tractors. As the firing line unit moves into position, one helper fixes a chain around the pipe and the other lays out electrodes for the operator at each joint. The operator then starts to weld, holding his arc steady while the pipe is turned, signalling the helpers when he wants the speed of rotation increased. As soon as this stringer or burning-in bead is completed, the operator moves to the next joint and repeats the procedure, which is the same as before except that the helper cleans the first bead with a wire brush as the pipe is turned. Two beads are made at each joint, the finish bead having the effect of annealing the stringer bead as well as giving greater strength and absolute security against pin holes.

In the field, an operator and two helpers have made and scaled two beads on 16-inch diameter pipe in less than 10 minutes.

The welding of oil storage tanks is now receiving a great deal of attention and thought. It has been common practice for a number of years to weld tank tops and bottoms. For this, the shielded arc either automatic or hand is ideal as these welds are much more resistant to corrosion than the type formerly used.

The electric arc process was first introduced as a maintenance tool. Improvements in the process have also been reflected in the larger field for repairs by arc welding. At the oil wells the process is used for the quick and economical repair of field equipment, worn and broken casings, drill bits and so forth. In the past year many special electrodes have been developed which are particularly adapted to this type of work. One electrode, for rebuilding medium high carbon surfaces is covered with a special coating which eliminates the objectionable wildness of the arc met when welding this type of steel. Other electrodes have been developed for using the shielded arc process to rebuild worn manganese steel, weld stainless steel and so forth.

The repair of existing pipe lines is of timely interest. The first deterioration in the pipe starts in the form of pits, usually caused by oxidation, or carbon spots in the pipe itself. These spots oxidize, rust and some spots go through until a leak occurs. On other lines, due to expansion and contraction—couplings will leak on flanges.

A few years ago one of the largest pipe line companies in the Southwest, the Prairie Pipe Line Co., started the repair of old lines with the use of electric welding. They found, after several months of experiment, that they could take an electric arc welder and weld these pits in the pipe without any danger, even with the pressure on the line. This was a big advantage in the repair of an old line for if it was necessary to shut a line down and dig it up, it was just as cheap to put in a new section of pipe as to try to fix the old pipe. However, when the cost of shutting down an 8-inch oil line of 450 pounds pressure averages $400 an hour for every hour shut down, it is very readily seen that any line that can be satisfactorily repaired without a shutdown is saving considerable money. It is quite a standard practice today, on an old line to dig it up, clean it, weld it, repaint it and put it back into the ditch without even cutting the pressure off; and there have been in the past year or so, several hundreds of miles of pipe lines from 6 to 16 inches in diameter that have been repaired in this manner without ever being taken out of commission.

The method of arc welding on such a line as has been used by several of the largest pipe line companies, is somewhat as follows:

The first operation is the welding of the small pits in the pipe. This can very readily be done by a quick circular motion of the electrode similar to filling up any small hole, and the action of the arc kills the rust spot filling same with pure iron, which in future will not rust. If the pit is too large and deep so that there is danger of the electrode's burning through, or if there are too many pits, then it is advisable to put a small patch made out of plate or a section cut out of a larger size pipe, over a series of pits and weld it on. It will be found that the majority of the pitting will take place on the bottom side of the pipe, and if the bottom side is pitted the whole length, the next procedure would be to cut out a half section from the next size larger pipe, slip it underneath and weld the longitudinal seam on both sides of the line. Then close the ends and the job is taken care of with ease and a minimum of welding.

The next operation, if the pipe is bad both on top and bottom, would be to put a section the full length of the pipe both top and bottom. The most feasible way of doing this is to put the top section on first having it come down just to the center of the pipe, then having the bottom section come up underneath the pipe and lap over the top section so as to extend just beyond the center line of the pipe. This gives a convenient lap to weld on and one weld on each side the length of the pipe, together with the bell hole welds at each end are all that are required.

Many lines, particularly if old, have been covered with patches and clamped; in the majority of cases the gaskets underneath the patch can be cut out back a short distance, the patch pounded down against the pipe and welded in position in four or five places so that the pipe clamp can be removed and the patch solidly welded to the pipe. This particular method is very easy to follow if a leak springs in the pipe. First put on the patch with regular gasket, clamp it down with proper clamp, fit the edges of the patch to the pipe and weld it on, then remove the clamp.

In putting on complete sections of pipe it is not advisable to approach too close to couplings or flanges. It would

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*Presented before the September 24-25, 1931, meeting of the Southwestern District of the A.P.I. Division of Production, Lufkin, Tex.

PENNSYLVANIA GEOLOGISTS MAKE NEW REPORT ON TIOGA GAS AREA

CORNING, N. Y., Sept. 19.—No new wells were completed in the Tioga Field, in Tioga County, Pennsylvania, in the past week in review, but completions were reported from the Wayne-Dundee Field on the New York side of the New York-Pennsylvania gas field.

The North Branch Development Co. will probably drill in No. 1 Barcroft, Lawrence Township, Tioga County, early next week, according to reports by company officials today. Drilling has started again following the running and cementing of the casing earlier this week. The cement was being drilled out today.

Penn United Gas Co. has one well nearing the pay on the Ida B. Russell farm, Farmington Township. The hole is nearing the 3,000-foot mark and probably about 1,000 feet of drilling remains before the sand will be uncovered.

Eight Men Burned

Eight men were badly burned at a drilling well near Silver Creek, Erie County, New York, when an 8,000,000-foot gas well caught fire. The crew was re-casing the well which had come in a couple of days before. Jack Kaiser, driller was caught under some pipe and was unable to extricate himself before he was engulfed in flame. His clothes were burned from his body and he was considered in a most serious condition. The most of those burned were men who were watching the crew at work.

An 8,000,000-foot well was drilled in this week in the town of Hanover, near Dunkirk, in western New York.

A rig is being moved in for a gas test near Portage in Livingston County, New York. The Brandywine Securities Corp. of Wilmington, Del., which owns the Portageville Gas Co. will drill the well which is on the Walter Nevinger tract.

The Belmont Quadrangle Drilling Co.'s No. 1 Syderski in the Dundee gas field is good for 1,500,000 feet. The Tri-State Electric Co. and Bigelow Gas Corp.'s No. 1 Cemetery lot, in Wayne village, started at 4,500,000 feet at 1,695 feet.

The Williamsport Oil & Gas Co. completed its No. 1 Dencenberg, near Crystal Springs, Yates County, New York, and it showed a 3,000,000-foot initial production. The same company completed another well recently in Wayne Village and these two comprise its gas holdings in the Wayne-Dundee Field up to this time.

The Belmont Quadrangle Drilling Co. drilled its twenty-eighth successful well in the Wayne-Dundee Field when it completed a 1,500,000-foot gasser on the Syderski farm this week.

A roundup of the gas wells in the Wayne-Dundee Field as of September 1 showed the Belmont-Quadrange company far in the lead as to wells completed and initial gas production. The following table shows the companies, the number of their gas wells and the total initial production of the wells:

Company—	No. of wells	Production per day cu. ft.
Belmont Quadrangle	28	123,000,000
Bigelow	5	41,500,000
Buffalo	1	3,000,000
Burns	1	3,500,000
Carpenter	1	2,500,000
Crescent	3	6,750,000
Cunningham	8	30,250,000
Decker	1	8,000,000
Olean-Finger Lakes	4	11,000,000
Olean-Wayne	1	3,000,000
Oriskany	1	4,000,000
Pentoga	3	8,000,000
Reid	1	5,000,000
Reserve	2	5,000,000
Stone and Kemp	1	3,000,000
Tri State	3	10,000,000
Bigelow-Tri State	2	11,200,000
Tyrone	2	3,723,000
Wittmer	5	29,725,000

The Pennsylvania and New York sides

(Continued on Page 104)

Pipe Line Construction News

TEXAS-CHICAGO GAS TRANSPORTATION COST

CHICAGO, Sept. 21.—Details of the cost of producing and transporting natural gas from Texas to Chicago were introduced at the hearings of the Illinois Commerce Commission to determine the action to be taken by the commission on the proposed new rate schedule of the Peoples Gas Light & Coke Co.

Total investment of the Continental Construction Co., the transporting organization, and the Texoma Natural Gas Co., the producing concern, at the present time amounts to $72,724,391, according to the testimony of Ralph W. Gallagher, director of the former organization.

This investment will increase, however, he said, until 15 years hence, it will amount to $83,969,408, an average of $78,346,900 for the period. It was estimated that the average annual net income of the two companies during the period will be $4,840,490, equivalent to an average annual return of 6.2 per cent on the investment.

Details of the investments for the first year and the fifteenth year follow:

	Year	
	First	Fifteenth
Cost of natural gas leases owned	$15,429,768	$15,429,768
Wells purchased and drilled	1,317,500	9,717,500
Gathering lines	4,589,000	7,109,000
Gasoline plant at Fritch, Tex.	750,000	750,000
Main line from Fritch, Tex., to Joliet	32,900,377	32,900,377
Compressor station	10,538,314	10,538,314
Telephone system	916,022	916,022
Int. during construct.	4,016,982	4,142,000
Administrative, engineering and other gen. exp. incidental to const.	1,236,427	1,336,427
Working cap., stores and supplies	1,030,000	1,030,000
Total	$72,724,391	$83,969,408

These figures relate exclusively to the cost of producing and transporting the gas to Joliet, Ill., from the Texas fields. Testimony relative to the investment of the Chicago District Pipe Line Co. in the line from Joliet to Chicago was presented by W. G. Rudd, vice president in charge of operations of the Peoples Gas Light & Coke Co.

The total investment in the Chicago-Joliet line in 1932 will amount to $3,079,597, according to Mr. Rudd. The cost of this construction was $36,650 per mile, in comparison with $36,582 per mile for the entire line.

Payments for gas by the Chicago District Pipe Line Co. in 1932 will total $7,214,017, expenses including amortization will aggregate $369,575 and the interest on the investment, at 8 per cent, will amount to $246,368. This will bring the total cost of the gas delivered to Chicago to $7,829,960 for the year.

Joseph Grossman, assistant corporation counsel, urged the commission to withhold its decision on the application of the Peoples Gas Light & Coke Co. to blend natural and manufactured gases until the rate hearing had been concluded.

PIPE LINE TO TOPEKA

TOPEKA, Kans., Sept. 19.—The Kansas Power & Light Co. filed an application with the Kansas Public Service Commission to build a pipe line from Elmont, 7 miles north of Topeka, to the central heating and power plant which the company owns in Topeka and uses to furnish steam heat to the downtown section of the city.

This company recently completed a lease on the Stanolind pipe line from a point in Nebraska to the Missouri line and will use the line as a natural gas pipe line. The line has a capacity of 14,000,000 feet a day. The company will use 5,000,000 feet a day in its plant here.

LAY 46 MILES OF PIPE FOR GAS GATHERING LINE

FORT WORTH, Tex., Sept. 21.—Kemper-Harms Contracting Co. is laying approximately 10 miles of 10, 12, 16 and 20-inch gas line from the Humble Oil & Refining Co.'s gasoline plant now under construction near London, to the company's plant under construction at Kilgore. Linde weld process is being used in welding the line. Approximately 46 miles of various size line will be laid throughout the district for gas gathering lines to supply the two gasoline plants with natural gas from the wells.

The company's plant at London is about one-third completed. George M. Simpson is construction superintendent on this plant, and W. B. Calhoun will be plant superintendent. The Naylor Pipe Co. has about 2 miles of spiral pipe connecting to the London plant. Construction on the plant west of Kilgore has only started.

The Sinclair-Texas Pipe Line Co. is laying 9 miles of 4-inch gathering line from its pumping station in the Charles Alexander Survey, Gregg County, to the Gladewater area, and is soliciting connections in that area. A pumping station will be constructed near Gladewater.

GAS LINE INTO BUTTE HAS BEEN COMPLETED

BUTTE, Mont., Sept. 19.—Marking the completion of what is believed to be the most difficult pipe-laying job ever attempted, eastbound and westbound crews of the Phoenix Utilities Co. met near Rocker and welded in the last section of the Butte-Cut Bank line. Eddie Keyser, subcontractor under the Winston Co., and C. H. Tornquist, S. A. Hobson and S. S. Nichols, officials of the Phoenix Utilities Co., witnessed the completion of their most diffcult task.

Only 70 days had elasped since the first pipe was laid, and in that time 199 miles of 20-inch, 16 miles of 16-inch and 8 miles of 12-inch pipe have been laid across the backbone of the Rockies and through scores of miles of solid rock.

An average of 3 miles a day was maintained on the Butte-Cut Bank job.

The total amount of gas now "on top" at the Cut Bank Field is 142,000,000 feet per day, said to be more than necessary for anticipated needs.

Half the main line has already been filled with gas—as far as the Dearborn River. The remainder of the line is being filled at a rate of about 30 miles a day, Mr. Nichols said, so that natural gas will be in Butte this month in accord with predictions made earlier in the year.

Although the pipe has been brought across a tremendously rough terrain, Mr. Nichols declared that the country just west of Butte is as difficult as any because of its rocky nature and irregular surface, with short hollows and hummocks.

The northern line has been laid at an altitude varying from a maximum of 5,825 feet to a minimum of 3,125 feet. In one place the ditch was cut through 40 miles of solid granite. Streams, irrigation ditches and marshes caused trouble, with one multiple river crossing necessitated.

Sixteen-inch pipe was being brought into Butte and 12-inch into Anaconda. The junction of the two branch lines with the 20-inch pipe is 11 miles northeast of Anaconda.

The eastern pipe-laying project, from the Dry Creek district to Bozeman, has already been completed. The northern line supplies the cities of Butte, Anaconda, Deer Lodge and Helena from the Cut Bank Field.

DIXIE GULF GAS LINES TO UNITED GAS SYSTEM

Another step in the process of simplifying the corporate structure of the United Gas System was announced in transferring all properties and assets of the Dixie Gulf Gas Co. to the United Gas Public Service Co., the principal operating subsidiary of the United Gas Corp.

Liquidation of the Dixie Gulf Gas Co. places extensive pipe line facilities under direct ownership of the United Gas Public Service. Prior to its liquidation, the Dixie Gulf Gas Co. consisted of a main pipe line system extending from the Waskom compressor station in the Waskom, Texas, gas field to Houston and Beaumont. The line consists of approximately 137 miles of 22-inch pipe from the Waskom compressor station to the Goodrich compressor station; 76 miles of 18-inch pipe from Goodrich to Beaumont and Port Arthur, and 63 miles of 16-inch pipe from Goodrich to Houston.

The company also has a line from the Waskom compressor station to Marshall, consisting of 19 miles of 8-inch and 10-inch pipe line; natural gas gathering systems in the Waskom and Panola Fields; a field compressor station in the Panola Field, and the main line compressor station in the Waskom Field at the terminus of the main line.

The Dixie Gulf Gas Co. supplied gas to industrial consumers in Beaumont, Port Arthur and Houston as well as other points along the lines where the United Gas Public Service Co. and affiliates distribute natural gas to industrial and residential consumers.

Liquidation of the Dixie Gulf Gas Co. will bring no change in personnel, officials announced, all employes remaining in their present posts.

TEXAS COMPANIES MUST FILE LAW ACCEPTANCE

AUSTIN, Tex., Sept. 21.—A bill to require pipe line companies to file a statement with the Texas Railroad Commission accepting the provisions of the pipe line law passed at the first special session of the forty-second legislature before being permitted to exercise the right to eminent domain and other rights was introduced in the house by Representative Dewey Young of Wellington.

The law requires pipe lines entering fields to take ratably from each producer and requires common purchasers of oil to purchase equally from all producers.

The bill would deny them the right of eminent domain, "and other rights incident thereto," unless their acceptance was filed.

ONTARIO EXTENSION

CHATHAM, Ontario, Sept. 19.—Consumers Gas Co. of Toronto has commenced extension of its suburban transmission lines and distributing system from Lakeview, Ontario, to the westerly limits of Port Credit, a distance of about 5 miles. The work will be completed within two months. Extension may later be made to Toronto Township.

NEBRASKA-DAKOTA LINE

DENVER, Colo., Sept. 21.—Fredell Construction Co., Denver, has been awarded a contract to lay 90 miles of 14-inch pipe by the Northern Natural Gas Co., an affiliate of the Missouri Valley Pipe Line Co. The line will extend from Dakota City, Neb., to Sioux Falls, S. D. Material is already being moved in and work will start immediately.

TEXAS-EMPIRE LINE IS NEARING COMPLETION

FORT WORTH, Tex., Sept. 21.—Nine more days will see the completion of one of the largest trunk lines in the East Texas district, the Texas-Empire Pipe Line Co.'s 12-inch welded line to Port Arthur. This line will enter the competing field for connections. It will have a capacity of around 65,000 bbls. per day. The Tidal Oil Co. is receiving bids on ten 80,000-bbl. tanks to be located on tank farm site near southern terminus of this large line in which the company has an interest, and which will transport oil to the coast for the Tidal Oil Co. The latter company is the eighth largest producer in the East Texas district and will guarantee a number of producers and considerable oil for the line when it is ready to run oil. The Tidal Oil Co. already has a 6-inch outlet from the Joiner Pool, connecting with the Magnolia Petroleum Co.'s Gregg County-Center Station carrier. Tidal has been running over 14,000 bbls. daily through the 6-inch to the Magnolia line.

The Texas Pipe Line Co. has started construction on a small gathering system on the Cora Hanna farm in the Cadene Survey, southwestern Rusk County, and has four 5,000-bbl. tanks up here. Two 80-horsepower Buda engines will be used in the station. The company has completed seven 80,000-bbl. tanks on the Gilstrap farm in the Joiner area, and four 80,000-bbl. tanks at its Monroe station in the Tenison Survey, Gregg County.

WESTERN SERVICE CORP. PLANNING EXTENSIONS

TOPEKA, Kans., Sept. 21.—The Western Service Corp., heretofore operating in Kansas as a pipe line, has been granted a certificate by the Kansas Public Service Commission to engage in the retail distribution of natural gas.

Pleasanton, Mound City and Blue Mound, in eastern Kansas, will be furnished gas by the company under a certificate granted by the commission. Gas from Kansas wells will be furnished to the three towns.

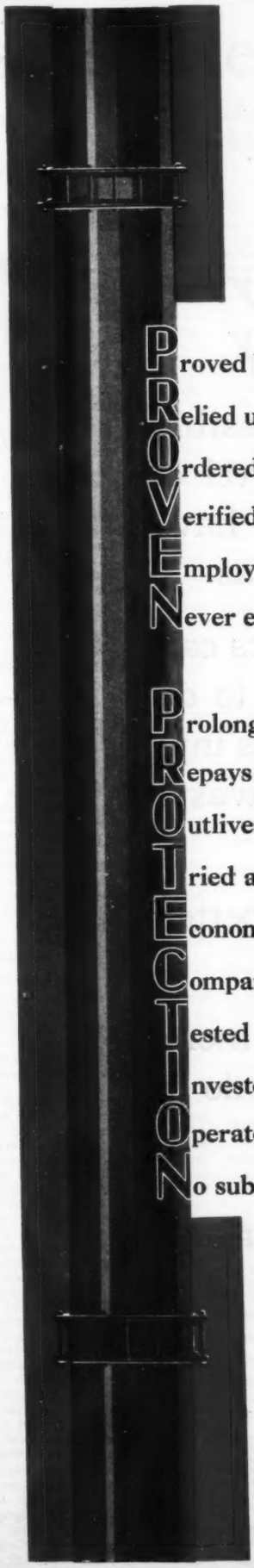
T. S. Salathiel of Independence, Kans., attorney for the corporation, told the commission a gas reserve of 1,500,000,000 feet in Oklahoma would be available when the company was ready to extend pipe lines into Kansas to supply additional cities with gas.

The three Kansas towns will receive 5,000 feet of gas for $3, Salathiel informed the commission.

MORE INTEREST SHOWN IN PIPE LINE SYSTEMS

Stabilization of the crude oil production situation has focused attention of the industry on the transportation systems which carry crude oil to refineries and gasoline to centers of consumption. Of greater value at this time than ever before are the large wall maps showing all crude oil and gasoline trunk pipe lines, compiled and published by The Oil and Gas Journal. These maps are the only ones showing all gasoline pipe lines in this country.

A limited number of these maps, printed on especially heavy bond paper, are available at the low price of $1 each, including postage. Companies and individuals interested in procuring copies of these maps are urged to make their requisitions as soon as possible as it is not the intention to print any more of the maps this year. On the reverse side of the oil and gasoline pipe line map is shown all natural gas trunk pipe lines in the United States.



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Discuss Reopening of Oklahoma Pools

Producers, Purchasers and Governor Murray Jockey on Satisfactory Terms on Which to Lift Shutdown Order

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oklahoma's crude oil production for the week ending September 19, increased approximately 1,700 bbls. a day which is mostly from the unrestricted pools in the State. The State's daily average for the same seven days was approximately 257,900 bbls. a day, at the close of the seventh week of martial law in Oklahoma. The week's output from the Oklahoma City Field totaled 30,486 bbls., a daily average of 4,355 bbls.

The reopening of the prorated fields in Oklahoma is being discussed since the action of the Texas Railroad Commission paves the way for stabilization of the overproduction in that State. It is believed that a revised price schedule will be worked out that will be satisfactory to Governor Murray and the major oil companies. The Oklahoma City Field has several proration problems which are being discussed before the field can be opened.

The leasing of acreage in different parts of the State has increased during the last few weeks. Since the first of the year all the major oil companies have been surrendering acreage in the wildcat areas of the State. The leasing activity has been in the vicinity of the older producing areas which are being surveyed with geophysical instruments and when favorable structures are found leasing of acreage starts.

Several wells are expected to be completed in the Oklahoma City Field and transactions are in prospect on the west side of the field. It is believed that these transactions will permit a wider development on the west edge of the field which is as yet undefined.

Discuss Capital Field

The reopening of the Oklahoma City Field has been under discussion at several meetings which have been held in Oklahoma City. At several of these conferences representatives of the pipe line companies, producers and state officials have been present. The reopening of the field was one of the chief subjects, as the operators in that field have suffered the most because all of the production has been shut in. During these conferences the price situation has been discussed, and the governor has stated that he will not lift the shutdown order until the price of $1 a barrel is posted. In order to meet the governor's demand a proposed revision of the crude oil price schedule has been discussed but no agreement was reached. Another important item is how to produce the Oklahoma City Field after it has been opened. It was estimated that more than 4,000,000 bbls. of oil is underproduced from scattered wells in the field and some express the opinion that this underproduction should be allowed to be made up before the wells that are even with their allowables start producing. The wells that are overproduced in the field from various causes are expected to be kept shut in until the amount of overproduction has been made up, before they start on their regular allowables.

The pipe line companies will be obliged to make new nominations in Oklahoma City since the market demand has changed since their last nominations were made before the shut down started. The last nominations were 225,000 bbls. a day from the Oklahoma City Field. The Corporation Commission is expected to decide on the questions of underproduction and the pipe line nominations.

It is generally believed that with the reopening of the capital field and the Greater Seminole area, the old proration regulations will be discarded, since there is the possibility that martial law will continue, in the prorated areas of the State.

Stabilization of the oil industry in the Mid-Continent area by October 1, is being attempted by oil operators with an improvement expected to start in a few days. The State's allowable under the proposed allocation made at the meeting in Oklahoma City last week gives Oklahoma 546,000 bbls. a day for the balance of the year. Comparing the 546,000 bbls. with the actual production of the State during the month of July, which was 527,971 bbls. a day, the new allowable is an increase of approximately 18,000 bbls. a day over the last month the State was producing before martial law was ordered.

Some of the oil leaders have expressed the opinion that if a satisfactory maximum allowable amount is fixed for the production from the East Texas Field, a revised price schedule for the Mid-Continent area, which will be satisfactory to Governor Murray, and to major purchasers will be announced. Shortly after the new prices have been announced the shutdown order may be lifted in the Oklahoma City and Greater Seminole Fields.

Buying Pawnee Acreage

The Gardner Petroleum Co. was the highest bidder per acre on the nine tracts of acreage offered for lease at the Pawnee Indian Agency during the week. The acreage included in the tracts was located in Sections 14-23-5, 24-24-5, 26-23-5, and 35-23-5, all in Pawnee Conty. The area consisting of Payne, Logan and Garfield Counties is being tested by surveys with magnetometers, seismographs and other geophysical instruments.

Dry Holes Slow Up Test Work

The majority of the wildcat tests that have been drilled in the western part of the State have been unusually deep and have been mostly dry holes which has slowed the development of the area and oil companies are now centering their efforts on the shallower districts.

A slight increase in the leasing activities was noted during the week in Logan, Lincoln and Creek Counties. Other parts of the State were quiet. The following is a record of the transactions reported during the week ending September 12. In Logan County, L. H. Wentz leased the SE NW, Section 4-15-1, for 10 years. The Texas Company secured a two-year extension on the W half NW, Section 10-19-4w. Shell Petroleum Corp. leased the SW NE and NE NE, Section 22-18-2w, for 10 years. Tom Slick Oil Co. assigned to L. H. Wentz all of its interest in the NE, Section 21-15-1w. O. R. Reed assigned all his interest to the Indian Territory Illuminating Oil Co. in the SE NE, Section 6-19-4w.

In Lincoln County, the Tidal Oil Co. released the E half SW, Section 4-14-3. J. N. Williams has leased the E half SE, Section 12-12-4, for 10 years. W. O. Allen has leased for 5 years the SE, Section 31-15-3. Deep Rock Oil & Refining Co. has a lease on the S half SW, Section 20-15-3. Tom Slick Oil Co. has assigned the Prairie Oil & Gas Co. the SW, Section 13-14-3. Atlantic Oil Producing Co. has assigned to the Prairie Oil & Gas Co. the N half NE and N half SE NE, Section 18-13-6.

In Creek County, M. S. Hughes leased the SW NW NW SW, Section 11-19-9. W. S. O'Hair the SW SW, Section 14-16-10. M. S. Hughes leased the SW SW, Section 11-19-9.

In Payne County, Magnolia Petroleum Co. leased the N half NE Section 3-18-1w for six years.

In Pottawatomie County, the Gypsy Oil Co. leased the N half SE Section 12-9-3. The Eason Oil Co. leased a one-half interest in the S half NE and SE NE Section 7-9-5. The Gypsy Oil Co. also leased the SW SE Section 29-9-4. Cosden Oil & Gas Co. leased the NE NE Section 1-6-4 and the S half NE Section 14-9-2.

In Pontotoc County, the Gypsy Oil Co. leased the SE SE Section 20-5-5. L. M. Callaway leased the E half of E half NW Section 35-5-6.

In Noble County Magnolia Petroleum Co. leased the SW Section 29-20-3w for 10 years and the SW Section 8-21-3. Joe Lathrop leased the NW Section 5-21-3.

In Alfalfa County P. Stein has leased the SE Section 9-24-10w, and E half SE SW Section 25-25-10w.

In Okfuskee county the Gypsy Oil Co. has leased the S half NW and N half SW Section 24-13-8.

Oklahoma City's Total Output

The total recovery of oil from the Oklahoma City Field from the date of discovery on December 4, 1928, to August 31, 1931, is approximately 72,850,000 bbls. of oil. According to Field Umpire Bradford the Oklahoma City Field produced 667,027 bbls. of oil during the month of August, while the field was under martial law which started on August 4. The field has 58 producing companies. The Indian Territory Illuminating Oil Co. has 99 leases, Tom Slick Oil Co. owns 51 producing leases and Phillips Petroleum Co. has 52 producing leases. There are 13 leases in the field that have produced over 1,000,000 bbls. each up to August 31, 1931.

MILLION-BARREL LEASES

Company and lease—	Bbls.
Cromwell-Franklin Oil Co., Trosper Park	3,657,800
Wirt Franklin Pet. Corp., Lowery	2,755,000
Sinclair Oil & Gas Co., Venci	2,045,000
Sinclair Oil & Gas Co., School Land-54	1,818,800
Coline Oil Co., Olds	1,725,600
I. T. I. O., Mary Sudik	1,452,200
I. T. I. O., Trosper et al	1,358,200
I. T. I. O., Mable Fuzzell	1,283,400
I. T. I. O., Button	1,257,100
Coline Oil Co., Warren	1,246,650
Mid-Kansas Oil & Gas Co., Fortson	1,211,100
British-American Oil Co., Holmes	1,177,900
I. T. I. O., fee	1,040,650

The new wells completed in the Oklahoma City Field during the week are given below. New locations were announced on the southwest edge of the field and it is believed that preparations were being made for other new locations. The Denver Producing & Refining Co.'s No. 2 King, NE cor. NW SW NW, Section 3-11-3w, flowed 3,962 bbls. of oil in two hours and was then shut in. The gas was estimated at 40,000,000 feet a day. The Wilcox sand was found from 6,395-6,530 feet. Tom Slick Oil Co.'s No. 4 Central, SW cor. NE SE, Section 3-11-3w, flowed 257 bbls. of oil in eight hours and was shut in. The gas was estimated at 8,000,000 feet a day. Wilcox sand was found from 6,245-6,540 feet.

Two new locations were announced during the week, Indian Territory Illuminating Oil Co.'s No. 1 Little, NE cor., Section 27-11-3w, southwest of the extension well recently completed by the Phillips Petroleum Co. and Shell Petroleum

(Continued on Page 101)

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW, Sec. 12-27-11w	Shut down 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE, Sec. 14-24-11w	Shut down 5,502 ft.

ATOKA COUNTY

Campbell's No. 1 Baird, NW NE SW, Sec. 31-1-13	Rig.
Edgerton Edwards' No. 2 Rowland, SE NE NW, Sec. 6-1-15	Rig.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW, Sec. 34-8-26w	T. D. 2,344 ft.; plugged back to 1,890-1,900 ft.; 1,500,000 ft. gas.
Mid-Continent's No. 1 Schaff, C NE SW, Sec. 22-11-22w	Waiting on cement to set 430 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW, Sec. 17-2-22w	Shut down 2,550 ft.
White et al's No. 1 Green, SW cor., Sec. 34-10-24w	Shut down 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW, Sec. 13-19-10w	Shut down 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	Shut down 1,115 ft.

COAL COUNTY

Radial Oil Co.'s No. 1 McCraw, NE NW, Sec. 2-1s-8	Rig.
McCraw Oil Co.'s No. 1 Ward, NE SE, Sec. 35-1-8	Drlg. plug; showing 2,000,000 ft. gas 1,765-1,846 ft.; mudded off gas; shut down.
Whitney et al's No. 1 Miller, SE NE, Sec. 10-2-8	Shut down 760 ft.

COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW, Sec. 3-3-9w	Shut down 1,450 ft.

LE FLORE COUNTY

H. E. Dowd et al's No. 1 Unknown, SE NE, Sec. 17-3-22	Drlg. 1,112 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW, Sec. 9-24-6w	Shut down 5,850 ft.

GARVIN COUNTY

Malarnee et al's No. 1 Phillips, NE SW SE, Sec. 34-2-3w	Shut down 4,830 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor., Sec. 1-7-22w	5,000,000 ft. gas 1,455-65 ft.; T. D. 1,760 ft.
French's No. 1 Murphy, SW NW, Sec. 23-7-21w	Shut down 1,645 ft.

HARPER COUNTY

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Sec. 14-26-24w	20,000,000 ft. gas 5,350-5,400 ft.; T. D. 8,539 ft.; shut down; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Ault et al's No. 1 Harrison, CWL SE NE, Sec. 14-9-19	Shut down 650 ft.
Ault et al's No. 1 Hall, NW SW SW, Sec. 14-9-19	Shut down 2,000 ft.
Ault et al's No. 1 Hall, SE NW, Sec. 25-9-19	Shut down 200 ft.
Holden's No. 1 Phillips, SE cor., Sec. 3-9-18e	Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW, Sec. 10-9-18e	Shut down 2,387 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW, Sec. 15-5-11	Shut down 1,645 ft.

KAY COUNTY

Lewis et al's No. 1 Harris, SE NW, Sec. 14-25-1	Location.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE, Sec. 9-27-2	Shut down 3,693 ft.
Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w	Rig on ground.

(Continued on Page 95)

Ritz-Canton Increases Kansas Output

Field Opened After a Brief Shutdown by Public Service Commission. Ellsworth Landowners Protest

By W. A. Spinney
Staff Correspondent, Kansas Fields

A substantial increase in daily average crude oil production in Kansas was reported during the week ending September 19. The State averaged approximately 107,860 bbls. of oil a day compared to 100,420 bbls. the previous week, a gain of 7,440 bbls. The increase in production was believed due to the Ritz-Canton Pool in McPherson County, which was opened for production after being shut in by the Kansas Public Service Commission.

Landowners may force the development of wildcat areas that have been shut in for a pipe line outlet. New wildcat locations are being announced in the central western part of the State. A new test for Kingman County was announced. It is R. J. Mac Murray and others' No. 1 Weatherall, C SW, Section 29-28-10w, and the material is moving in. It is located about 5 miles south of Skelly Oil Co.'s No. 1 Miles, which is estimated to be a 600-bbl. oil well, together with 5,000,000 feet of gas a day. It has been shut in for several months awaiting a pipe line outlet.

A meeting attended by approximately 100 individual operators and representatives of major oil companies and representatives of the Public Service Commission, was held in Wichita because of a complaint of several operators with production in the Ritz-Canton Pool in McPherson County who say that under the unit plan of proration now in effect in the field they are victims of unnecessary drilling, and they asked the commission to set aside the unit plan. The commission will consider their application at the next meeting. The majority of the operators present indicated they preferred to retain the unit plan of operation.

The Public Service Commission desires further data on which to base its decision in regard to production from the pool, and until the next meeting, which will be held September 29, the allowable from the field will be 10 per cent of the potential. Some express the opinion that the allowable may be increased at the next meeting. During the first 10 days in September, the Ritz-Canton Pool had a daily average of 10,580 bbls. of oil according to Umpire Lloyd R. Pickrell, who also acts as state agent and the representative of the operators in the field.

The pool's potential based on production tests made over a period of several months, while the wells were being completed, was 130,000 bbls. a day. Under the unit plan the potential of the 94 completed wells is estimated at 70,000 bbls. a day. Under a recent order of the commission the Ritz-Canton wells are allowed to yield 10 per cent of their potential based on the estimate of 130,000 bbls. daily. Of the 94 completed wells in the field, 53 are chat producers and 41 are Viola lime producers.

Operators with chat production in the Ritz-Canton Pool agreed that in case the commission issued an order allowing the field to produce 20 per cent of its potential production, the output of the chat wells should be held down in order to maintain a back pressure on the wells with a view of increasing the ultimate recovery. It was agreed that unless some conservation policy is adopted, it is expected considerable waste in the loss of production may result.

The pipe line outlet of the Ritz-Canton Pool is approximately 20,000 bbls. a day. The pipe line companies with lines into the area were Phillips Petroleum Co., Skelly Oil Co., White Eagle Oil & Refining Co., Globe Oil & Refining Co., Stanolind Crude Oil Purchasing Co. and Texas-Empire Pipe Line Co.

Good Well in Sedgwick

Continental Oil Co.'s No. 1 Black, SW cor. SE NE Section 16-25-1, Sedgwick County, in the Goodrich Pool, swabbed 81 bbls. of oil in three hours and 250 bbls. in 16 hours from a new pay horizon for the pool, the Viola lime at 3,334-37 feet. It is the first Viola lime well in the Goodrich Pool and it is believed that the finding of the Viola lime will result in additional tests in the vicinity as the company has a large number of leases in the area which are expiring soon and to hold these leases tests must be drilled on each or extensions secured from the landowners. No. 1 Black was an old chat producer drilled deeper and is the most northerly well in the pool. The pool has four producers all owned by the Continental Oil Co.

Activity in Ellsworth

The southwestern part of Ellsworth County has been active during the last few weeks and as the result of several transactions three important locations are expected to be announced in the near future. The Gypsy Oil Co. has been negotiating with Tatlack and others for acreage in Township 16-9w, Ellsworth County, and several others have been leasing and buying considerable royalty in the vicinity of these proposed tests. Two of the proposed tests may be drilled by Rosenthal & Beardmore and the other by Allison & Fitzwilliam. One of the tests, Rosenthal & Beardmore's No. 1 in the SW cor. Section 31-16-9w, is located about three-quarters of a mile northeast of Alyward and others' No. 1 Stratman, SE cor. NW SE Section 1-17-10w, which is estimated at 2,000 bbls. a day, but is shut in without any pipe line connection. Another of the proposed tests is Rosenthal & Beardmore's No. 1 in the SW cor. SE Section 36-16-10w.

Allison & Fitzwilliam's No. 1 in the SW cor. SE SE Section 23-16-10w, is a proposed location about a mile and a half east of the Gypsy Oil Co. and Palmer's well which is estimated at 1,500 bbls. a day, but is also shut in. If these tests are drilled and production is found it may result in some major pipe line company constructing a line into the area. All the wells in the county are shut in for the lack of an outlet, and it is believed the pipe line companies were delaying the construction of any lines until it is proved the area is of enough importance to assure them of an adequate supply. Another producing well would tend to prove considerable acreage and may prove the existence of a major pool in the general area and a pipe line may be constructed into the area by some of the purchasing companies in the near future.

The Kansas Public Service Commission announced that it desires further data on which to base its decision on the allowable production from the Ritz-Canton area in McPherson County. The allowable was placed at 10 per cent of the potential where it will remain until the next meeting which will be held in Wichita September 29. It is expected that a change in the allowable will be announced after the hearing.

Following the hearing the Public Service Commission will go to Lyons, Kans., where a hearing will be held September 30, on the complaint of the Schurr Pool landowners of Rice County. They are asking that the 11 producing wells which are shut in, be allowed to produce 200 bbls. per day each.

The Ritz-Canton Pool, according to L. R. Pickrell, field umpire and agent for the Public Service Commission, the unit potential of the field as of September 1, was 117,727 bbls. from 90 wells. The actual potential tests on the Viola lime wells in the field which were ordered discontinued on the date the field was shut down will be continued immediately. The field was ordered shut down August 24 pending the hearing of a complaint filed by W. H. Lassen. On August 29, the commission modified its order and authorized the field to produce 10 per cent of its potential unit production. On September 14, the complaint of W. L. Lassen was heard by the commisison, but no change in the allowable production from the field was ordered. The pipe line outlet from the field is approximately 20,000 bbls. a day. The unit potential production of the field on September 1 was as follows:

Company and lease—	Unit potential
Abilene Oil Co.'s No. 1 Anderson	806
Abilene Oil Co.'s No. 2 Anderson	1,934
Abilene Oil Co.'s No. 3 Garrett	1,506
Barnadall Oil Co.'s No. 1 Almore	50
Carey and others' No. 1 Smith	50
Derby Oil Co.'s No. 1 Domsch	1,850
Derby Oil Co.'s No. 1 Unruh	no test
Dickey's No. 1 Decker	6,722
Dickey's No. 1 Williams	50
Dieter-Youker's No. 1 Sellers	960
Helmerich-Payne's No. 2 Koehn	60
Jones' No. 1 Holmes	50
Jones' No. 1 Flook	2,092
Lario O. & G. Co.'s No. 1 Becker	2,220
Lario O. & G. Co.'s No. 1 Boal	no test
Lario O. & G. Co.'s No. 1 Lacquement	1,556
Lario O. & G. Co.'s No. 1 Lagree	3,500
Lario O. & G. Co.'s No. 2 Lagree	3,160
Lario O. & G. Co.'s Nos. 1 and 3 Miller	1,262
Lario O. & G. Co.'s No. 2 Miller	2,762
Lario O. & G. Co.'s No. 4 Miller	1,894
Lario O. & G. Co.'s No. 1 B. Miller	2,150
Lario O. & G. Co.'s No. 1 L. L. Miller	3,256
Lario O. & G. Co.'s No. 1 Ritz	640
Lario O. & G. Co.'s No. 1 A. Ritz	1,372
Lario O. & G. Co.'s No. 1 Suffield	2,710
Lario O. & G. Co.'s No. 3 Suffield	1,242
Lario O. & G. Co.'s No. 3 Suffield	1,192
Lario O. & G. Co.'s No. 1 Wiggers	2,750
Lario O. & G. Co.'s No. 2 Wiggers	1,988
Lassen's No. 1 Hale	2,714
W. C. McBride, Inc.'s No. 1 Gustafson	602
W. C. McBride, Inc.'s No. 1 Whitright	1,510
W. C. McBride, Inc.'s No. 2 Whitright	2,562
McPherson O. & G. Co.:	
No. 1 Lindberg	50
No. 1 Robinson	50
No. 1 Salthouse	50
Marleen Oil Co.'s Nos. 1 and 2 Mun	1,027
Mid-Kansas O. & G. Co.:	
No. 1 Garrett	3,888
No. 1 Pitts	50
No. 1 Unruh	1,726
No. 1 Whitright	1,248
Olsen's No. 1 Johnson	2,226
Olsen's No. 2 Johnson	1,734
Olsen's Nos. 1 and 2 Koehn	635
Olsen's No. 2 Koehn	1,932
Palmer and others' Nos. 1 and 2 Ritz	1,111
Palmer and others' No. 1 A. Winn	2,162
Palmer and others' No. 2 A. Winn	2,770
Palmer and others' No. 1 B. H. Winn	4,840
Phillips Pet. Co.'s No. 1 Grattan	230
Phillips Pet. Co.'s No. 2 Grattan	1,346
Phillips Pet. Co.'s No. 1 Wiles	2,464
Plains Petroleum Co.:	
No. 1 P. J. Unruh	1,670
No. 1 "B" P. J. Unruh	1,156
Reserve Oil Co.'s No. 1 J. M. Ritz	1,148
Reserve Oil Co.'s No. 1 O. A. Ritz	1,820
Reynols-Unruh's No. 1 Koehn	410
Rosenthal-Beardmore's No. 1 Ritz	1,248
Shawver and others' No. 1 Decker	no test
Shell Pet. Corp.'s No. 1 Anderson	450
Shell Uet. Corp.'s No. 2 Giffin	688
Shell Pet. Corp.'s No. 1 Lewis	4,092
Shell Pet. Corp.'s No. 1 Miller	528
Shell Pet. Corp.'s Nos. 1 and 2 Ritz	100
Shell Pet. Corp.'s No. 2 Salthouse	50
Stanolind O. & G. Co.:	
Nos. 1 and 3 Flook	898
Nos. 2 and 4 Flook	3,846
Stearns-Streeter's No. 1 Blair	50
Stearns-Streeter's No. 1 Chindberg	920
Syndicate O. & G. Co.'s No. 1 Becker	1,214
Syndicate O. & G. Co.'s No. 2 Becker	no test
The Texas Co.'s No. 1 Munn	300
The Texas Co.'s No. 2 Munn	700
The Texas Co.'s No. 3 Munn	2,266
The Texas Co.'s Nos. 4 and 5 Munn	1,960
United Pet. Co.'s No. 1 Smith	1,928
Vernon O. & G. Co.'s No. 1 Drum	360
Wakefield's No. 1 Koehn	1,722
Washoma Pet. Co.'s No. 1 Meeks	1,850
Wolf Creek Oil Co.'s No. 1 Dunsford	50
Wolf Creek Oil Co.'s No. 1 Kerhbiel	50
Youker and others' No. 1 Grattan	50
Total	117,727

During the month of August the pipe line shipments of the field were 368,269 bbls. of oil, a daily average of 11,718 bbls.

Cowley County

Lehman and others' No. 1 Page, NW cor. SW SE, Section 36-32-4, is spudding. Dunlap and others' No. 1 Thomp-

(Continued on Page 101)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

BARTON COUNTY

Company, farm and location—	Remarks:
Syndicate Oil Co.'s No. 1 Boertz, NW SE SE, Sec. 13-18-12w	Shut down 2,440 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE, Sec. 16-19-14w	Drlg. 2,685 ft.
McCool et al's No. 1 Tsern, NW SE NE Sec. 12-20-11w	Drlg. 2,460 ft.

CHASE COUNTY

Borden et al's No. 1 Atkinson, NW SE Sec. 18-18-7	Rig on ground.

CLAY COUNTY

Crystal Oil et al's No. 1 Tivier, SW cor., Sec. 19-8-3	Shut down 2,700 ft.

COFFEY COUNTY

Heyburg's No. 1 Kroft, SE SW SE, Sec. 30-22-14	Shut down 1,565 ft.

COWLEY COUNTY

Slocum et al's No. 1 Union National Bank, C SW SW, Sec. 16-35-4	Drlg. 490 ft.

DICKINSON COUNTY

Severs et al's No. 1 Lavengood, NE SW, Sec. 13-13-2	Shut down 4,170 ft.

ELLSWORTH COUNTY

Keyes Bros.' No. 1 Gregory, SW cor., Sec. 23-16-9w	Shut down 2,735 ft.
Alyward et al's No. 1 Stratman, SE NW SE, Sec. 1-17-10w	Silicious 3,255-71 ft.; 117 bbls. 2 hrs.; shut in; est. 2,000 bbls.; no pipe line connections.
Aladdin Pet.'s No. 1 Stoddenberg, C SW, Sec. 22-16-10w	Silicious lime 3,332-47 ft.; est. 1,500 bbls. a day; shut in.
Milton et al's No. 1 Kester, SE NE, Sec. 6-14-9w	Shut down 3,576 ft.; Conglomerate 3,214-50 ft.; hole full water.

FINNEY COUNTY

National Ref. Co.'s No. 1 Wells, SW cor., Sec. 13-23-30w	Spudding.

FORD COUNTY

Carter Oil Co.'s No. 1 Everett, C NE, Sec. 22-29-21w	Drlg. 5,783 ft.
Swain et al's No. 1 Taylor, C NW, Sec. 21-25-24w	Shut down 5,105 ft.

GRAHAM COUNTY

Schleimeyer et al's No. 1 Clark, SW NE NE, Sec. 11-9-25w	Shut down 4,648 ft.

HASKELL COUNTY

Tree Oil Co.'s No. 1 Warner, C SE, Sec. 29-30-34w	Drlg. 1,855 ft.

HARVEY COUNTY

Liggett et al's No. 1 Davis, SW SE NE, Sec. 7-24-1	Drlg. 1,110 ft.
J. P. Flannigan's No. 1 Sheridan, C SW, Sec. 33-22-1	Drlg. 2,977 ft.

KINGMAN COUNTY

Skelly Oil Co.'s No. 1 Miles, NE cor., Sec. 30-27-10w	1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft. 6,000,000 ft. gas; at 2,133-42 ft. 3,000,000 ft. gas; showing oil 3,385 ft.; T. D. 3,441 ft.; shut down; estimated at 600 bbls. a day.

LINCOLN COUNTY

Buck et al's No. 1 Schulz, C SE NE SW, Sec. 19-11-6w	Rig on ground.

MORTON COUNTY

Hydraulic Oil Co.'s No. 1 State Land, NW SE, Sec. 32-34-43w	T. D. 3,640 ft.; temp. abnd.

The BRIDGEPORT Shopper's PAGE

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Dry Holes in North Louisiana-Arkansas

Three Active Wildcats in Bowie County, East Texas, Several Mississippi Wildcats Attract Notice. Duster in Zwolle

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Sept. 21.—There were no developments of interest in any of the proven areas in this division during the week, not an oil well being reported and only one gas well out of four completions. The Pyramid Oil & Gas Co.'s No. 2 Breard, Section 10-18-16, was completed with an estimated initial flow of 10,000,000 feet of gas from 2,735 feet. Thirteen feet of producing sand was penetrated and the rock pressure was 1,200 pounds. The new gasser is in the Greenwood Field, West Caddo Parish, an area opened up about one year ago by Belchic & Laskey, owners of the present operating company in this field.

The other completions were all dry holes in widely scattered sections, North Louisiana furnishing two and Arkansas one. The Pelican Natural Gas Co., as predicted last week, abandoned its No. 1 Long Bell Lumber Co., Section 3-1n-3w, Rapides Parish, at 3,588 feet. This was one of the rankest of wildcats on a 90,000-acre block, 35 miles southwest of Alexandria, and hopes had been entertained that some encouragement would be shown by the test. As the contract called for only a 2,500-foot test, the leases will be held intact and in all probability other exploration will be initiated in the future, probably a deep test.

In the Zwolle Field of Sabine Parish, the Houston Sabine Production Co. abandoned its No. 1 Sabine Lumber Co., Section 36-8-12, at 2,508 feet. This well has been shut down for some time, having tested dry at 2,400 feet, and being one of the numerous tests in the proven or semiproven territory of this erratic field that missed the producing crevice in the chalk rock. Drew County, Arkansas, furnished the other duster with the abandonment of the Co-Operative Development Co.'s No. 1 Hardy, Section 6-13-7, at 1,931 feet.

Wildcats to Test

Several wildcats of note are arranging to test and others tested during the week with disappointing results. The Langbridge Oil Co.'s No. 1 Stephens, Section 17-9-11, a wildcat in northern Sabine Parish, is arranging to set 6-inch casing at 3,360 feet, after encountering 3 feet of oil-bearing sand from 3,366-69 feet. A drill stem test developed 480 feet of oil in the hole in one hour. In Caddo Parish, W. P. Wallace, trustee's No. 2 Cunningham-O'Conner, Section 15-17-14, tested dry in sandy shale on drill stem test at 2,668 feet. The operators are arranging to pull 6-inch casing which was set above the Blossom sand at 2,042 feet and bridge the hole for a test in the Nacatoch formation around the 900-foot level. A previous well, an offset to the east of the present test, had an initial flow of several million feet of gas from the shallow sand, but salt water developed and it was abandoned. The wildcat has created quite a bit of interest in local circles because it is located on the southwestern outskirts of the city limits of Shreveport.

DeSoto Disappointment

Another disappointment was experienced in a DeSoto Parish wildcat when the Rellitt Oil Co.'s No. 1 Gannon heirs, Section 12-11-16, tested dry with a small show of gas from 1,965 feet. The well is only a short distance inside the Louisiana state line, across the Sabine River, from several wells drilled in Shelby County, East Texas, by the Gulf Refining Co. several years ago, all of which had showings of oil and gas at various depths. E. L. Chapman's No. 1 Pickering Lumber Co., in Shelby, which blew in from 3,868 feet, making an estimated flow of 25,000,000 feet of gas, is about 4½ miles northwest of the DeSoto test. Another wildcat in DeSoto Parish, about 15 miles north of the Rellitt well, is attracting attention, after having encountered 21 feet of likely looking sand with some shale, from 2,864-85 feet. The test is S. S. Meek, trustee's No. 1 Wagner, Section 5-12-14, and is about 1 mile south of Pelham & Bundy's No. 1 Rhodes, Section 32-13-14, which was completed last October making about 12 bbls. of oil and 15 bbls. of salt water from 3,009 feet. A drill stem test will be made in the Meek well, and if the results warrant, casing will be set for a thorough test.

East Texas Wildcats

Bowie County, East Texas, has three active wildcats, two of which have recent developments of interest. Hindeman & Bell are drilling at 3,040 feet on their No. 1 Merritt, Y. S. McKinney Survey, in what is reported to be the top of the Austin chalk, which would indicate a high check of this formation. Logan & Elliott's No. 1 Smith, Charles Lewis Survey, is drilling at 3,604 feet in anhydrites. The base of the broken line of this test was reported at 3,394 feet, and the top of the anhydrites at 3,484 feet. In the same county, Tarkington & Jones, after considerable delay, have spudded in on their No. 1 Whybark, J. H. Dyer Survey, and are drilling at 900 feet. In Cass County, J. F. Morrisey (was E. K. Atkinson) is drilling in sandy shale at 3,647 feet on his No. 1 Wilson, J. A. McFarland Survey. Olds & Smith have resumed operations on their No. 1 Atheny, J. C. Byers Survey, and are washing to bottom at 3,075 feet. In Harrison County, Thomas & Kinsey's No. 1 J. R. Watson, Thomas Iden Survey, has spudded in, with 15½-inch surface casing at 260 feet and are drilling at 886 feet. This test is in the eastern city limits of Marshall, and is reported to be financed by business interests of that city. It is stated that a Trinity test will be made unless pay is found at a lesser depth.

In Zwolle Field

Several wells in the Zwolle Field are nearing the pay horizon. W. N. Coates' No. 1 Towery, Section 1-7-13, is coring at 2,000 feet. This well is in close proximity to the three producers in this western extension of this field, which has not yet registered a failure. The Loring Oil Co. is coring at 2,306 feet in its No. 18 Bowman-Hicks, Section 15-7-12. The Pelican Natural Gas Co. has set 6-inch at 2,335 feet in its No. 1 Louisiana Long Leaf Lumber Co., Section 10-7-11, and The Texas Company's No. 1 L. C. Delatin has 6-inch set at 2,343 feet. Lanier & Dyer tested dry at 2,521 feet on their No. 1 Barthold, Section 35-8-12, and are shut down, awaiting orders.

Mississippi Operations

Wildcatting in Mississippi has slowed down considerably, but several wells of interest are active. In Adams County, the Arkansas-Louisiana Pipe Line Co. has 13-inch casing set at 367 feet in its No. 1 Brandon Hall Farms, Section 61-18-1w. The latest drilling report gives it a total depth of 1,551 feet in broken lime. The Gulf Refining Co.'s No. 1-A Long Bell Lumber Co., Section 10-2-16w, is drilling chalk rock at 2,740 feet. In Humphrey County, the Danciger Oil & Refining Co.'s No. 1 Bellgrade Lumber Co., Section 29-14-4w, is trying to mud off fresh water at 1,409 feet, and in Winston County, the Mississippi Drilling Co. is drilling at 3,900 feet on its No. 1 Scarborough, Section 15-13-14.

Several wells in the proven gas field of Rankin County are nearing the pay sand. J. E. Grandstaff and others are drilling in Wilcox at 2,140 feet on their No. 1 Buford, Section 11-5-1e. Muse & Muse have set 6⅝-inch casing at 2,387 feet on their No. 1 Webb, Section 12-5-1e, and Meredith and others have 6⅝-inch set at 2,371 feet on their No. 1 Allen, Section 12-5-1e. The Square Deal Oil & Gas Co. is temporarily shut down at 2,495 feet on its No. 1 Spann, Section 13-5-1e.

Bossier Parish

In northwestern Bossier Parish, Will Hall and Elmo Walker, pioneer operators, are assembling a block of 3,000 acres centering around Section 25 and 36-23-14. The contract calls for a 3,000-foot test to be started not later than November 1. The test will be watched

(Continued on Page 101)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location—	Remarks:
Arcadia Drlg. Co.'s No. 1 Atkins, 175 ft. W, 120 ft. N, SE cor. NW NE, Sec. 27-18-6	Tested dry 2,364 ft. (corrected).

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14	S.D. 2,890 ft.
Flint River Oil Co.'s No. 1 DeMoss, 200 ft. S and E, NW cor. SE NW, Sec. 32-22-13	S.D. 3,046 ft.
Dr. W. N. Hankin's No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11	S.D. 1,350 ft.
D. L. Perkins' No. 1 Ardis & Co., 1,127 ft. N, 198 ft. E, SW cor., Sec. 13-15-11	S.D. 1,004 ft.
Rombaugh et al's No. 1 Allison, SW SE, Sec. 19-19-13	S.D. 1,600 ft.

CADDO PARISH

W. P. Wallace, tr.'s No. 2 Cunningham-O'Conner, 210 ft. S, 940 ft. E, NW cor., Sec. 15-17-14	Tested dry 2,668 ft.; plugging back.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4	Set 12-in. csg. 110 ft.
Hudson et al's No. 1 Burton, Sec. 35-12-20	S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6	T.A. 3,097 ft.

CLAIBORNE—SUGAR CREEK

United Gas Public Service Co.'s No. 1 Treadwell & Hawk, 1,470 ft. S, 1,395 ft. E, NW cor., Sec. 6-19-5w.	Drlg. chalk 2,392 ft.

DE SOTO PARISH

Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15	S.D. 2,350 ft.
S. S. Meek, tr.'s No. 1 Wagner, 300 ft. S and E, NW cor. SE NW, Sec. 5-12-14	Coring sandy shale 2,865 ft.
Ben Merritt, tr.'s No. 1 Wallums, NE cor. SW SW, Sec. 19-12-12	Set 6-in. csg. 2,580 ft.; T.D. 2,657 ft.
E. T. Oakes' No. 1 R. H. Bryant et al, 200 ft. N and W, SE cor. NE NW, Sec. 30-13-15	Chalky shale 2,605 ft.
Rellitt Oil Co.'s No. 1 Ganno hrs., 300 ft. S and E, NW cor. NW NE, Sec. 12-11-16	Tested dry 1,965 ft., W.O.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-13	S.D. 1,266 ft.

(Continued on Page 90)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, farm and location—	Remarks:
J. T. McCormick's No. 1 C. B. Christian, 330 ft. S, 300 ft. W, NE cor. SW, Sec. 27-21-15	S.D. 1,335 ft.
Shreveport Oil Corp.'s No. 2-B Muslow, 1,000 ft. S, 300 ft. E, NW cor., Sec. 32-21-15	S.D. 2,135 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15	Set 10-in. 150 ft.; S.D.

CADDO PARISH—GREENWOOD AREA

Pyramid O. & G. Co.'s No. 2 Breard, 723 ft. S, 660 ft. E, NW cor., Sec. 10-18-16	Completed 10,000,000 ft. gas at 2,735 ft.

CADDO PARISH—RHODESSA AREA

United Gas Public Service Co.'s No. 1 H. J. Bussa, Sec. 33-23-16, 990 ft. W and 660 ft. S of NE cor.	Rigging up.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 300 ft. S, NE cor., Sec. 2-20-4	Location.
Carbon Consolidated's No. 5 fee, 1,945 ft. N, 3,046 ft. W, SE NE, Sec. 21-20-4e	Set 6-in. at 2,084 ft.

OUACHITA PARISH

Carbon Consolidated's No. 7 Guthrie, Sec. 50-20n-4e, 5,263 ft. N, and 7,475 ft. W of corners of Secs. 25, 26 and 49, in Sec. 50	Location.

RICHLAND PARISH

Southern Carbon Co.'s No. 1 J. A. Noe, Sec. 24-17-5, 3,291 ft. S, 660 ft. E, NW cor.	Drlg. 2,375 ft.
Southern Carbon Co.'s No. 1 Pollard, Sec. 26-16-5e, 710 ft. S and 563 ft. W of NE cor.	Location.
Southern Carbon Co.'s No. 6 Rosengraut & Ducomb, 640 ft. E, 1,980 ft. N, SW cor., Sec. 19-17-6	Rigging up.
Southern Carbon Co.'s No. 9 Rosengraut & Ducomb, 330 ft. N, 660 ft. E, SW cor., Sec. 18-17-6e	Drlg. 2,325 ft.
United Gas Public Service Co.'s No. 2 Cummings, 3,485 ft. W, 1,320 ft. N, SE cor., Sec. 24-17-5e	Set 6-in. 2,300 ft.
United Gas Public Service Co.'s No. 5 Earle, Sec. 25-17-5e, 1,320 ft S and E, NW cor.	Location.
United Gas Public Service Co.'s No. 1 Faust, Sec. 13-17-5e, 320 ft. W, 600 ft. N, SE cor.	Location.
United Gas Public Service Co.'s No. 1-B La. State 2,354 ft. E, 1,922 ft. N, SW cor., Sec. 32-17-6e	Set 6-in. 2,300 ft.
United Gas Public Service Co.'s No. 1 C. H. Pipes, 2,447 ft. S, 178 ft. E, NW cor. SW, Sec. 35-17-6e	Set 6-in. 2,300 ft.

(Continued on Page 90)

Jim Wells County Well Up After Shot

Fifteen New Locations, Several in Schoolfield-O'Byrne Extension and in the Southwest Extension of the Pettus Field

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Sept. 21.—Carsil Oil & Gas Co.'s No. 3 McGill, in northwestern Jim Wells County which was reported completed the middle of August, after a light shot, with 400 pounds pressure and about 7,000,000 feet of gas has increased to 850 pounds pressure closed in and 700 pounds after flowing for three hours through half-inch choke. It is also showing a trace of gasoline. There has been little shooting of wells in Southwest Texas. The formation is identified as upper Oligocene, and lacking experience in shooting the shot was probably too light. No. 1 McGill which came in at 3,689 feet for a 30,000,000-foot or bigger gas well about 500 feet to the northwest was in sand. No. 3 McGill was in lime formation, total depth 3,804 feet, and had no sand and the log ran a little lower. No. 1 was plugged and abandoned as a precautionary measure after it had run wild for nearly two days.

With the showing in No. 3 McGill it seems probable that a sand body lies to the west since No. 2 McGill, 900 feet north of No. 1, failed also to get a sand but had the same lime formation as in No. 2 but was not shot.

This increase in No. 3 McGill was offset by a decrease in the flow and pressure of the Stanolind Oil & Gas Co.'s No. 1 Stratton in southwestern Nueces County about 25 miles southeast of it and 7 miles south of the Agua Dulce Field. At 4,752 feet No. 1 Stratton was completed with 1,030 pounds pressure and about 8,000,000 feet of gas and a light spray of gasoline but the pressure dropped considerably later and the well was killed and is coring deeper.

About 14 miles due west of it in Jim Wells County Stanolind Oil & Gas Co. has made location for No. 1 N. A. Hoffman approximately in the center of the 7,000-acre ranch in the La Trinidad Survey and last week spudded in.

Fifteen New Locations

With the exception of the announcement of 15 new locations it was rather a colorless week for field operations. Several new locations are announced in both the Schoolfield-O'Byrne extension in Duval County and the southwest extension to the Pettus Field in Bee County. Two of the new tests in the Schoolfield-O'Byrne extension are down to the sand and with casing set. Duval Oil Corp.'s No. 4 Bishop Cattle Co. set casing at 2,324 feet and Thomas & Tarver, Inc.'s No. 3 Bishop Cattle Co. set casing at about the same depth. The other new location in that area is the Humble Oil & Refining Co.'s No. 1 White, 1,650 feet from the west line and 330 feet from the south line of Survey 58, a north offset to the Duval Oil Corp.'s No. 3 Bishop Cattle Co., and the farthest north location in the extension. It is less than 1½ miles north to the nearest production in the Schoolfield-O'Byrne Pool and the supposition is that the two producing spots will merge into one pool and the Humble owns all of Survey 58, amounting to about 640 acres lying between the field on the north and the extension on the south.

Schoolfield-O'Byrne Field

It is interesting also that around the extension to the Schoolfield-O'Byrne Pool in Duval County there is nothing to limit the field except two gas wells on the west side. So far not a dry hole has been drilled in or around the extension. If it takes the shape of the field on the north, however, it will extend north and south for length and be not more than half a mile or so wide.

Jacob, Buzzini & Pickett's No. 2 Baldwin in San Patricio County at 3,804 feet is in a sand that tested a good volume of gas and a little water. It is coring deeper as it is thought the water is from above and more sand can be taken in. This test is 2½ miles south of the Aransas Oil Corp.'s No. 1 Welder which came in some weeks ago 15 miles north of the White Point Field and about the same distance south of the Refugio Field in Refugio County, opening a new gas field at 3,634 feet. Welder Oil Corp.'s No. 2 Welder is in sand at 3,654 feet and tested 1,000 pounds in four minutes and is waiting completion and other than it No. 2 Baldwin is the only test drilling in that district. One other test, Welder Oil Corp.'s No. 1 Welder, has been drilled since the discovery well and was dry.

The Jacob, Buzzini & Pickett test had a sand at 3,754 feet but continued to core.

Activity at Pettus

After a few weeks' delay following the completion of Damac's No. 1 Ray in Bee County a mile southwest of the Pettus Pool and with a fault between it and the Pettus Pool, active drilling has started. T. B. Slick has spudded and set surface casing in a north offset to Damac's No. 1 Ray and has made a location for an east offset and Houston Oil Co. has made location for its No. 2 Portis, a south offset to Slick's No. 2. Al Buchanan and F. B. Lefevre have made location for their No. 1 Ray about 3,200 feet west of Damac's No. 1 Ray and H. H. Weinert has made location for one in between. These two tests are one location from their north line and if they come in producers will call for north offsets by the T. B. Slick estate.

The most important test in the district is Buchanan and Lefevre's No. 1 Ray more than a half mile west. Many believe the Pettus Field will extend as far to the southwest as it does now to the east which will carry it about 2 miles or more past Damac's No. 1 Ray. The Buchanan and Lefevre test will help materially in trying out that theory. There is nothing in the way of dry holes to stop the field for many miles.

Balcones Fault

In the Balcones fault zone the only test of particular interest at this time is Humble Oil & Refinery Co.'s No. 1-C Sue Denman down around 2,000 feet at the last week-end and only a little more drilling till it reaches the sand at around 2,500 feet. It is an east offset to Camp's No. 1 Sue Denman which opened a new producing spot a mile southwest of the field, and for the present at least counted a new pool, until proven otherwise. Before this week is over the Humble test should be in the sand and give some added information on the geology of the situation. The understanding is that H. H. Weinert will make a location across the river to the southwest.

Another Edwards lime wildcat has spudded in in southern Bexar County. It is Dr. Ewell Neil's No. 1 J. Watson in the B. Martinez Survey, 10 miles south of San Antonio and about 500 feet south of Allen Park's No. 1 Potter, drilled more than a year ago and which had a good showing in the Edwards and bailed out considerable oil. It was one of the best Edwards lime showings ever encountered outside of the Luling district. Southern Bexar County has looked good to a lot of folks for years for Edwards lime production, hence this additional test near one that had a good showing will be watched with interest.

In the Edwards Plateau County, Evans & Gant's No. 2 Love is down 2,450 feet and drilling. It is within 100 feet of where No. 1 Love got its first good showing of oil at 2,552 feet and is about 1 mile southeast of No. 1. Drilling is hard and slow but within a few days this test should be down to that horizon. The drilling is in Pennsylvania formation and No. 2 Love is at this time the only test drilling in the Kerr-Real area.

Producers completed during the week were few, two in number, and both of them in Zapata County. O. W. Killam completed his No. 44 Cuellar in Survey 277 in the Killam-Cuellar Pool for 100 bbls., and Trevino Oil Corp. completed its No. 10 Trevino at the north end of the Escobas Pool in Survey 412 for 35 bbls. at 1,215 feet.

New Locations

Among the new locations are several interesting propositions. W. E. Olmstead and J. C. Russell have purchased Block 37 in the southeast corner of the Pettus Field from S. R. C. Oil Co. and are rigging up to deepen. It was completed at 3,903 feet which is a little shallower than other tests around it. The well came in originally for 1,000 bbls. a day. It is thought deepening will help it to increase in output.

Buckley Ranch Oil & Gas Co. is starting No. 1 Buckley in LaSalle County 200 feet from the south and 330 feet from the west line of Survey No. 37. It is pure wildcat and quite removed from any other operations.

In northern Karnes County, Edmiston is resuming work in No. 1 Cochran which was temporarily abandoned a year ago at 1,012 feet. The Neuhaus test in southern Karnes has been unable to get a water supply and has moved off.

Schimmel & Batts deepened their No. 3 Trigg in the southwestern part of Bastrop County to the top of the chalk at around 2,000 feet but did not improve the production. It was in serpentine all the way from 1,365 feet.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location— Remarks:
Tom Draper's No. 1 Trueblood, 250 ft. from N line, 1,440 ft. from W line of tract, John Neill Sur.....T. D. 650 ft.; shut down.
Glen Mathis' No. 2 Mrs. C. Martin, 100 ft. SE of No. 1...T. D. 2,732 ft.; drlg.

BLANCO COUNTY

Hardy-Sitton's No. 1 McMillan.....T. D. 1,410 ft.; shut down.
Theo. Hicks' No. 1 Specht, 1,500 ft. from S line, 500 ft. from W line of farm in Thomas M. Fowler Sur. No. 37 in extreme south point of county.....T. D. 825 ft.; drlg.
Liles Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155.....T. D. 1,100 ft.; drlg.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City.....T. D. 574 ft.; shut down.
C. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,360 ft. to N line, Sur. No. 94.....T. D. 712 ft.; shut down.

BASTROP COUNTY

W. A. Allen's No. 1 Birmingham, James Stewart Sur.....T. D. 1,200 ft.; drlg.
Texas Dev. Co.'s No. 1 C. H. Ray, 800 ft. from W line and 400 ft. from S line of farm in Thos. Christian Sur. .....Derrick.

BELL COUNTY

Fields & Lange's No. 1 C. S. White, 150 ft. from S line, 300 ft. to E line of farm in Nancy Roberts Sur.....T. D. 297 ft.; drlg.
Hartman Drilling Co.'s No. 1 E. L. Deaver, 600 ft. to N and 300 ft. to E line of farm, in Nancy Roberts Sur..T. D. 482 ft.; shut down.
J. W. Riley's No. 1 W. S. Chaffin, in M. Griffin Sur.....Spudded in.
James Scroggins' No. 2 Warrick, Ingram Sur.....T. D. 1,425 ft.; fishing.

BEE COUNTY

Alexander et al's No. 1 McFall, 3 miles S Skidmore.....T. D. 1,870 ft.; drlg.
Hughes et al's No. 1 Martin, 1,000 ft. S of Simms Oil Co.'s No. 1 Holzmark in John Lyford Sur.....Moving in rig.
Humble Oil & Ref. Co.'s No. 1 Laura Thompson, 6,360 ft. from N line, 15,100 ft. from W line of tract in Garrett Roache Sur., S part of county.....Rigging up.

(Continued on Page 92)

SOUTHWEST TEXAS PROVEN AREAS

COOKSEY POOL—BEXAR COUNTY

Company, farm and location— Remarks:
Witherspoon Oil Co.'s No. 1 Anoli, 412 ft. W of C of E line of tract in J. W. Riall Sur.....70 ft.; shut down.

DOBROWOLSKI POOL—BEXAR COUNTY

W. S. Rogers et al's No. 1 L. Dunnop, Juan Montez Sur. .....T. D. 612 ft.; shut down.

PETTUS POOL—BEE COUNTY

J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr County.....T. D. 3,930 ft.; standing.
Geo. N. Moore et al's No. 2 Freeland, in John Pace Sur., 1,000 ft. from S line, 600 ft. from E line of survey...T. D. 4,297 ft.; standing.
United Prod. Co.'s No. 39 Ray, 1,130 ft. to SE line, 2,396 ft. to SW line of T. Hanson Sur.....T. D. 4,530 ft.; set csg.; waiting on cement.
T. B. Slick estate's No. 1 Ray, in Kerr Sur., 210 ft. W of NE cor. of John W. Williamson Sur. and 330 ft. N of N line of same survey (location changed).....Spudded in.
Buchanan & Lefevre's No. 1 Ray, 3,154 ft. from E line, 150 ft. from N line of John W. Williamson Sur.....Derrick.
H. H. Weinert's No. 1 Ray, 150 ft. from N and E lines of lease in John W. Williamson Sur.....Derrick.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, 150 ft. to N line, 750 ft. to W line of tract, A. Floyd Sur.....T. D. 2,572 ft.; set csg.; standing.

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Duval Oil Corp.'s No. 4 Bishop Duval Land Co., 1,650 ft. from W line, 330 ft. from S line of N half of

COLE FIELD—DUVAL COUNTY

Cole Petroleum Co.'s No. 70 Benavides.....Making location.

CAMP POOL—GUADALUPE COUNTY

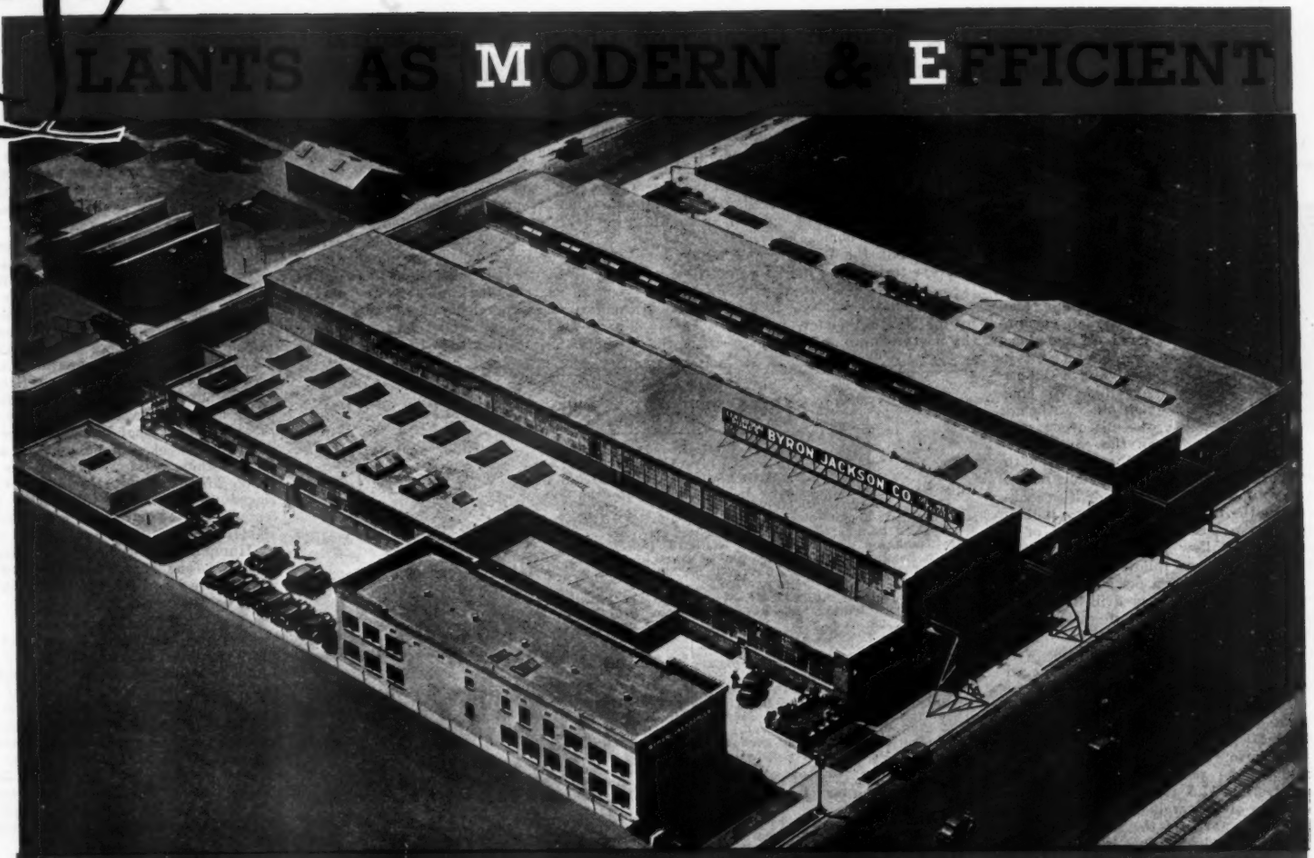
Humble Oil & Refining Co.'s No. 1-C Sue Denman, 450 ft. from S line, 150 ft. from W line of lease offsetting Camp's discovery well.....1,500 ft.; drlg.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 14 Cartwright, 1,000 ft. W of No. 23 Cartwright.....T. D. 5,400 ft.; standing.

(Continued on Page 92)

PLANTS AS MODERN & EFFICIENT



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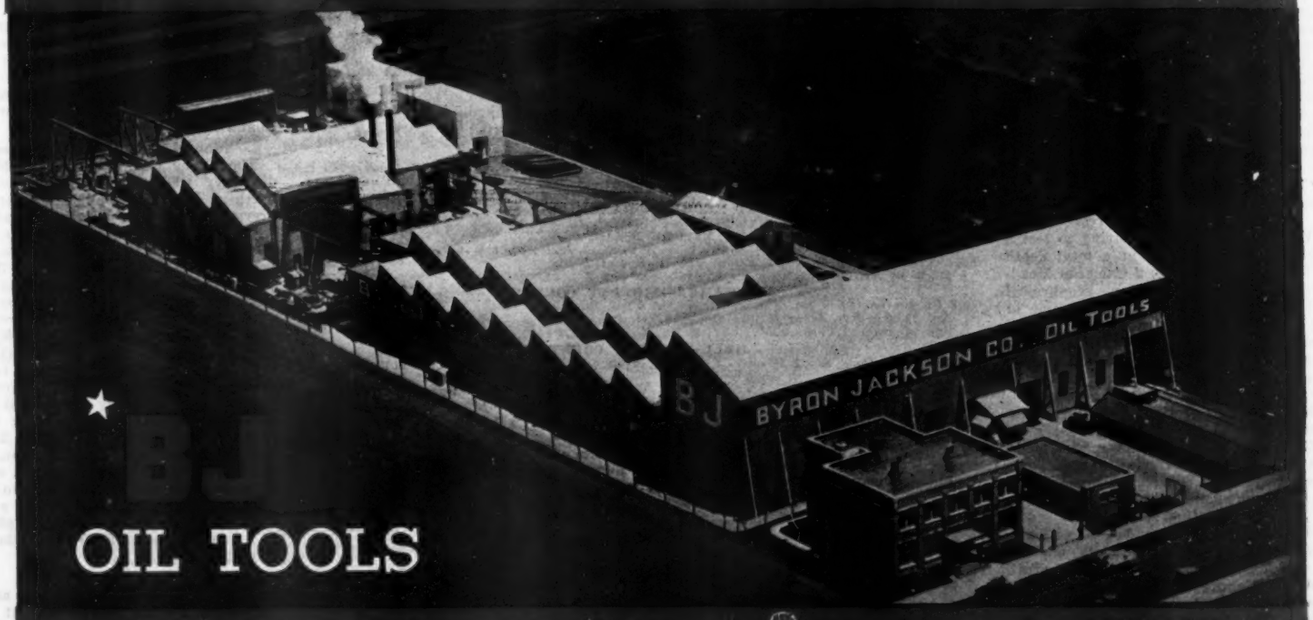

OIL TOOLS

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Moss Bluff Dome Has Only Completion

Interesting Wildcat Located on Cheek Dome, Central Jefferson County and on Extreme Northwest Flank of Humble Dome

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Sept. 21.—The only completion in Gulf Coast territory the past week was on the Moss Bluff Dome, Liberty County, where Texas Gulf Sulphur Co.'s No. 3 Harrison, a shallow cap rock sulphur test, which had encountered oil showings, was brought in swabbing 350 bbls. of fluid, 75 bbls. net oil. Although the discovery well in the cap overlying that dome, it is not regarded with any great amount of interest due to the heavy volume of sulphur water it is making. On the other hand, it gives indications of the possible development of a commercial shallow pool in that area.

The completion follows several attempts extending over a period of a couple of weeks. The test was drilled first to a total depth of 824 feet in cap and 8-inch casing was run to 797 feet to test the showings. At that depth the well made mostly sulphur and was plugged first to 800 feet and then to 798 feet in an effort to shut off the water. There the test swabbed an estimated 100 bbls. of fluid, 20 per cent oil, after which casing was perforated above 787 feet for the test made the past week. The oil is heavy, testing 17.5 gravity.

Location of this well is 1,600 feet east and 100 feet north of the southwest corner of the Harrison tract, B. M. Spinks Survey, and in what might be considered the northeast part of the cap rock area. It is one of a series of numerous shallow sulphur tests which have been drilled by the Texas Gulf Sulphur Co. this year. Production at Moss Bluff until now has been confined to a few deep wells in flank sand from 5,700-5,900 feet on the extreme east side. For the most part development has been disappointing with a number of deep dry holes being drilled around various sides of the dome as well as many shallow tests over the top of the dome. The dome itself is one of the largest on the coast. Recently oil companies gave up leases covering the greater part of the dome.

Cameron Meadows Test

Vacuum Oil Co. is preparing to test a sand showing oil found at a total depth of 5,260 feet in its No. 2 Cameron Meadows, wildcat on the company's geophysical salt dome prospect of the same name in the southern part of Cameron Parish, Louisiana. A string of 7-inch casing has been run and the test is waiting cement to set. This is the second test drilled on the prospect and is 500 feet south of No. 1, both being in Section 21-14s-9w. The first test found the same sand but with drill stem stuck a test never was made and the hole was sidetracked to a shallower sand around 3,800 feet where a small gas well was completed.

Interesting Wildcats

Locations have been made for two more particularly interesting wildcats, one on the Cheek geophysical prospect in central Jefferson County and the other on the extreme northwest flank of the Humble Dome. The former is being rigged up. It is Humble Oil & Refining Co.'s No. 1 Nelson, 550 feet from the north line and 50 feet from the east line of the west half of the 1,071-acre tract, William Rice Survey. This test is to be drilled jointly by Humble, Gulf Production Co. and Shell Petroleum Corp., which companies pooled their acreage in the area.

Cheek is a torsion balance discovery which was worked during 1929 but which never has been drilled. The discovery is credited to Cockburn Oil Corp. although the other companies have checked the area thoroughly. However, there has been considerable difference of opinion as to the location of the dome, the original findings placing it in the W. Carr and M. Pivitot Surveys to the west of the present test.

Deep Wildcat at Humble

At Humble, Sun Oil Co. has a derrick up for No. 25 Bender, a deep wildcat on the northwest, a mile to the north of the flank sand pool on the west side of the dome and several thousand feet to the south and some distance farther out from the dome from the present production on the northwest flank. Location of the test is 1,155 feet from the center of the railroad on an extension of the north line of the Bender North Addition and 8 feet south. Although Humble is one of the oldest domes and fields on the coast there is a long gap of undeveloped territory where the Sun test is to be drilled. Two or three scattered wildcats were drilled there years ago but these were abandoned around 3,000 feet when they failed to extend the shallow sand production.

New Drilling Activity

These new operations are a part of the new drilling activity which has been starting up on the Gulf Coast in the past several weeks. Development has begun in several new scattered wildcat areas and also is being resumed on many of the older domes where drilling has been suspended for several months. At Barbers Hill, where a new line fight play has got under way on the east flank to prove up a shallower sand recently opened there, no additional locations were added during the week although several are due to be staked. However, on the north flank, Mills Bennett Production Co. has rigged up for No. 1 Gulf-Barber fee, 50 feet out of the northeast corner of Strip 15, Henry Griffith League. This is west of Humphreys Corp.'s No. 1 Fitzgerald-Meadows, one of a string of good wells which have been brought in by that company on the north flank.

Pierce Junction

At Pierce Junction, Tilton and associates have rigged up for No. 2 Gulf-Jones fee, 15 feet from the south line and 25 feet from the west line of Block 49, W. H. Jones Subdivision, B.B.B.&C. Survey No. 1,028, northwest flank. This is the second new test to be started at Pierce Junction, Gulf having rigged up on another on the south side in its No. 33 Taylor. There has been no development at this dome since the active play on the northwest flank died out early this year.

Jefferson County Location

In addition to the location made by Humble Oil & Refining Co. in Jefferson County on the Cheek prospect, John I. Pipkin & Elam have made location for another wildcat in that county. This test, No. 1 Broussard, is 800 feet from the south line in the center east and west of the Broussard 206-acre tract, McGaffey Survey. This is in the Sabine district in the extreme southeastern tip of coastal Texas and just a few miles inland from the Gulf.

Manvel Well Good Producer

The Texas Company's No. 1 Belcher, discovery well of the Manvel prospect, northern Brazoria County, completed the previous week, has definitely established itself as a good producer. It has been flowing steadily since it was brought in September 9 and Saturday was flowing a little more than 1,600 bbls. daily on an inch choke. The oil continues clean without a trace of water. The well was completed flowing 2,000 bbls. daily. Location is being made by The Texas Company for another test, the third for the prospect. The exact location, however, has not been definitely determined upon.

Pelican Natural Gas Co. (Rex Petroleum Co.) has abandoned its No. 3 Prairie-Narronni at Edgerly, Calcasieu, Parish, Louisiana. This test, located on the extreme north side of the field to mark an extension, drilled into salt to a total depth of 4,618 feet and then was plugged to a sand around 3,200 feet where it tested salt water.

East Hackberry

J. G. Sutton has a location and is rigging up for his second test at East Hackberry. This test, No. 2 Irwin, is 250 feet east of No. 1, completed last month as a 2,000-foot north extension well. This is the fourth new test located since the bringing in of the well. Work at Hackberry the past several weeks, however, has been centered on rebuilding derricks which were blown down in a severe windstorm which swept Hackberry district as well as the Lockport Field further north in Calcasieu Parish.

GULF COAST FIELDS AND WILDCATS

Week Ended September 19
All Rotary

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Production Co.'s No. 5 Wilburn, Henry Griffith League, 350 ft. W of No. 4 in C of lease	Trying to plug cavity 1,435 ft.
Mills Bennett Production Co.'s No. 1 Gulf Fee, Henry Griffith League, 50 ft. out of NE cor., Strip 15	Rig.
Gulf Production Co.'s No. 5 J. F. Wilburn, Henry Griffith League, 50 ft. from N line of tract and 210 ft. W of No. 1	Drlg. salt 2,027 ft.; top of salt 1,720 ft.
Humphreys Corp.'s No. 6 E. H. Winfree, W. D. Smith Sur., 50 ft. from N line and 50 ft. from W line of tract	T.D. 5,886 ft.; sidetracked stuck drill stem 5,491 ft. and drlg. sand and lime 5,568 ft.
Humphreys Corp.'s No. 1 Ebanspacker, Henry Griffith League, 700 ft. from the N line and 70.6 ft. from the E and W lines of the tract	Pulling screen to deepen 4,469 ft.
Humphreys Corp.'s No. 8-H Kirby, Henry Griffith League, 333 ft. W of No. 6-H Kirby and 70 ft. N of S line	Drlg. salt 1,586 ft.
Humphreys Corp.'s No. 2 Tarbutton, Henry Griffith League, 385 ft. from E line and 21 ft. from N line of tract	Rig.
McAlbert Oil Co.'s No. 4 Wilburn, Henry Griffith League, 200 ft. W of No. 3 in C of lease, N and S	Drlg. salt 2,426 ft.; top salt 1,490 ft.
Rio Bravo Oil Co.'s No. 2 Fisher (W.O.), W. D. Smith Sur., 50 ft. out of NW cor. of tract	To reset screen 5,390 ft.
Sinclair Oil & Gas Co.'s No. 8 Wilburn, Henry Griffith League, 350 ft. W of No. 7 and 48 ft. from N line of tract	Drlg. hard sand 938 ft.
Sun Oil Co.'s No. 2 Winfree, W. D. Smith Sur., 50 ft. E of SW line and 150 ft. N of S line of tract	Drlg. rock 4,438 ft.
Sun Oil Co.'s No. 11 Wilburn, Henry Griffith League, 550 ft. W of No. 5 and 50 ft. from N line of tract	Drlg. 324 ft.
The Texas Company's No. 7 Wilburn, Henry Griffith League, 116 ft. S of Humphreys Corp.'s No. 8-H Kirby	Drlg. hard lime 1,362 ft.
The Texas Company's No. 2 Lawrence, Henry Griffith League, 240 ft. from E line and 412 ft. from N and S lines of strip	Drlg. 671 ft.

HUMBLE—HARRIS COUNTY

Southern Coastal Oil Co.'s No. 3 Parkins, John Jones Sur., 150 ft. N of No. 2	Derrick.
Sun Oil Co.'s No. 25 Bender, W. B. Adams Sur., 1,155 ft. from C of R.R. on an extension of the N line of the Bender North Addition and 8 ft. S	Derrick.
The Texas Company's No. 24 Kohler (W.O.)	T.D. 2,990 ft.; milled out 2,739 ft. and drlg. hard sand and boulders 2,767 ft.

PORT NECHES—ORANGE COUNTY

The Texas Company's No. 1 Polk-Kuhn-Glass, 260 ft. E and 1,545 ft. S of SW cor. Marshall Beaucham Sur., in the T. J. Notgrass Sur.	Cmtd. 12½-in. csg. 1,046 ft.
The Texas Company's No. 3 Kuhn, 587 ft. S and 150 ft. W of NE cor. of the Mary E. Hall Sur. No. 2	Location.

HANKAMER—LIBERTY COUNTY

Gulf Production Co.'s No. 5 Boyt (D.D.), H.&T.C. Sur. No. 22, 3,098 ft. from E line and 2,502 ft. from S line of tract	Drlg. sandy shale 2,863 ft.

HULL—LIBERTY COUNTY

Wenceslao Oil Co.'s No. 2 Palmer, Chas. Underton Sur.	Sand showing oil 1,951 ft.; cmtd. 6⅝-in. csg. 1,942 ft.
Sun Oil Co.'s No. 10 Carr	Rig up to deepen 515 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Production Co.'s No. 33 Taylor, James Hamliton Sur. No. 52, 300 ft. E of No. 32 and 50 ft. from S line	Rig.
Tilton et al's No. 2 Gulf Jones Fee, B.B.B.&C. Sur. No. 1,028, 15 ft. from S line and 25 ft. from W line of Blk. 49, Jones Subd.	Rig.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 20 Cade, N. Fitzsimmons Sur., 161 ft. W of No. 15 and 146 ft. SW of No. 17	Shut down 60 ft.
Yount Lee Oil Co.'s No. 22 Cade, N. Fitzsimmons Sur., 125 ft. S of No. 21	Drlg. sticky shale and lime 3,824 ft.
Yount Lee Oil Co.'s No. 23 Cade, N. Fitzsimmons Sur., 300 ft. S of No. 22	Location.

DAMON MOUND—BRAZORIA COUNTY

Layne et al's No. 8 Wisdom, 155 ft. from NW line and 150 ft. from NE line, Lot 52, Blk. D, Wisdom Subd., A. Darst Sur.	Drlg. salt water sand 2,385 ft.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 30 Moore, Mark Smith Sur., 400 ft. N and 600 ft. W of No. 29	Drlg. gumbo 1,012 ft.

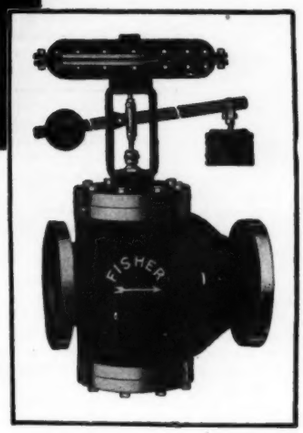
ORANGE—ORANGE COUNTY

Jefferson Prod. Co.'s No. 1 Bland	Sandy shale 2,980 ft.; drill stem stuck.

LOCKWOOD—FORT BEND COUNTY

Cullen & West and Gulf Prod. Co.'s No. 2-A Lockwood & Sharp (D.D.)	Drlg. 2,986 ft.
Cullen & West and Gulf Prod. Co.'s No. 3-A Lockwood & Sharp, J. Rabb Sur., 600 ft. E of No. 2-A	Drlg. gumbo and lime 1,377 ft.

(Continued on Page 93)



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Prairie Enters Northeastern Colorado

Drilling Operations Resumed in Hobbs Area, New Mexico. Wildcat to Be Drilled in Crook County, Wyoming. Arizona Test

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Sept. 21.—The Prairie Oil & Gas Co. has entered the northeastern Colorado area and probably will drill one or more wells. Several important deals in that district are pending and two or three key wells are nearing the sand. Reiter-Foster Oil Co.'s No. 1 Ida Johnson is making better than 500 bbls. daily while experimenting with the tubing still is in progress. Plans are under way for overcoming the water shortage in that district. The Colorado Associated Oil Co.'s No. 1 Pumphrey made 2,300 feet of hole in 24 hours. A good show of oil and gas at shallow depth is reported in an Archuleta County wildcat.

Drilling operations in the Hobbs Pool in New Mexico have been resumed with the spotting of a well by the Gypsy Oil Co. No wells have been drilled for several months. Allowable outlet of Hobbs Pool for the last half of September will remain the same as for the first half. A wildcat is being started in Bernalillo County, the first for some time.

One completion in Wyoming was reported in the Osage Field, a 20-bbl. pumper. A wildcat is to be drilled in Crook County. The Benzol Corp. will finance several tests in Converse County.

One completion and two new operations were reported in the Kevin-Sunburst Field in Montana. The Prairie Oil & Gas Co. has succeeded after several attempts in penetrating the big water pressure on the Porcupine Dome.

Arizona test of the Benedum-Trees interests is down 3,140 feet.

The Utah Southern Oil Co.'s Salt Valley test in Utah is resuming with 1,900 feet of oil in the hole.

COLORADO

With several key wells drilling close to the top of the pay, another establishing a record for rapid progress, the entrance of another major operator into the district, and with several important deals about to be closed up, northeastern Colorado continues to hold the spotlight in the Rocky Mountain territory. The Prairie Oil & Gas Co. is the latest of the major companies to enter the Greasewood area. While no official announcement has yet been made, it is reported to have acquired a block in Sections 1, 2, 11 and 12-5n-60, on the Morgan County side about 5 miles to the southeast of the Greasewood wells. The block includes the acreage acquired several months ago by Pauline Holland and associates which was transferred to the Eureka Syndicate, and some additional acreage around the block. Negotiations for water have been in progress and it is expected a test will be drilled. No location has yet been announced. The Prairie company, through its Wyoming subsidiary, the Prairie Oil & Gas Co., has considerable production in the Lost Soldier district in that State and through another subsidiary, the Producers & Refiners Corp., has a refinery at Parco, and extensive oil and natural gas holdings. The Prairie company also is reported to have acquired 240 acres in Section 11-6n-61, to the north of Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl well, and west of some acreage held by the Ohio Oil Co. The Prairie company also has taken a block of 3,840 acres in Washington County in Sections 17, 20, 21, 27, 28, 29, 31, 32 and 33-2n-54, on the eastern side of the Fort Morgan anticline and west of the town of Akron.

Another prominent operator has signed for a considerable block to the south of the Greasewood wells and another about 3 miles to the east. Negotiations are pending for some additional acreage and until these are completed, no official announcement is available as to the parties concerned. However, a contract already signed calls for one well by December 1, and three others on as many separate tracts at intervals of 90 days apart.

Water Supply

Shortage of water has delayed the drilling wells again this week, but a partial and probably a complete solution to this problem is in sight. Water at present for the rotaries is being taken from Jackson Lake through a system constructed by the Reiter-Foster company. On account of a shortage of water for irrigation purposes, and also the quality, this has not been ample for the needs or satisfactory as to quality and several of the wells have been down or drilling for short intervals only. The Tulsa-Fort Morgan Petroleum Co., which made a location for its No. 1 Emil Smith, C SE SW, Section 18-6n-60, on the Morgan County side, has been fortunate in securing a water supply and this probably will be a source of supply for the field. R. L. Roome, of that company, after making a pumping test on an old well drilled years ago for water a mile to the northwest of Orchard and about the same distance from the South Platte River, purchased the surface rights of the farm for a reported price of $5,000 in order to get this well. Its total depth is 50 feet and it has 25 feet of 12½-inch casing to the gravel. The pumping test for three weeks showed no decrease in the volume which was equal to the capacity of the 12½-inch pipe. Samples of the water sent to Oklahoma are said to have shown it to be an unusually good quality. Two of the major companies, the Ohio Oil Co. and the Continental Oil Co., are reported to have made offers for the supply at attractive figures, but neither has been closed awaiting the completion of Continental's No. 1 Briggs. When ready to go ahead it is planned to put in a 10-mile 8 or 10-inch line. The water is seepage water through gravel from the river which insures a permanent supply.

Deepening Discovery Well

The Platte Valley Petroleum Co.'s No. 1 Patterson, NE SE NW, Section 24-6n-61, the Greasewood discovery well which came in last October, and which showed a decline in production when the Reiter-Foster Oil Co.'s No. 1 Ida Johnson came in, has been deepened to 6,679 feet. It came back to a little better than former average of 350 bbls. a day while the Ida Johnson well was not producing, and then dropped to around 200 bbls. When drilling stopped last week it was in a much harder formation believed to be a cap over another sand in the Dakota. It was shut down until the directors authorized deeper drilling and this is now taking place.

The Reiter-Foster Oil Co.'s No. 1 Ida Johnson, C NE NW, Section 24-6n-61, an offset on the north of the discovery, which came in August 25, is still being worked on in an effort to produce it at the maximum. When the tubing was run close to the bottom of the hole, it failed to flow. It was then raised to 450 feet off bottom and when swabbed on September 13 through the tubing started to making 20 to 25 bbls. per hour. In 24 hours it made 554 bbls. Next day it made 595 bbls. and on the following day 554 bbls. Then it was decided to lower the tubing 20 feet off bottom and experiment further with it. This is now being done.

The Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl, C SE SE, Section 14-6n-61, is drilling at 5,300 feet and preparing to run the 9⅝-inch. Same company's No. 1 William Wilson, C NE SE, Section 24-6n-61, has derrick up. Manning & Terry, Inc., has the contract.

Continental Oil Co.'s No. 1 Briggs, C SE SW, Section 13-6n-61, an offset on the north to No. 1 Ida Johnson and the next probable completion, is being closely watched. The 7-inch was cemented at 6,585 feet and it will standardize before drilling in. The cementing difficulty in the first wells now appears to be definitely overcome. Eleven tons of ice were used in cooling the hole and 361 sacks of cement. The pouring was completed in 31 minutes and only 5 feet remained inside the pipe. This well probably will drill in within the next three days. Continental's No. 1 Gadbois, C SE SW, Section 24-6n-61, which has been drilling at intervals as water was available, is down 5,351 feet.

Greeley Oil Co.'s No. 1 Gadbois, C NW NW, Section 25-6n-61, spudded the past week and cemented the 15½-inch at 216 feet with 350 sacks.

Aztec Corp.'s No. 1 State, C NE NE, Section 16-6n-61, under contract to spud by September 25, is rigging up, but has not yet arranged for water supply.

In Morgan County, Colorado Associated Oil Co.'s No. 1 Pumphrey, C SE SE, Section 14-4n-58, North Fort Morgan Dome, is believed to have made a record this week when 2,300 feet of hole was made in 24 hours. It is temporarily shut down at 2,960 feet. Sixteen feet of core was taken, beginning at around 2,900 feet in what was supposed to be the Hygiene, and it is reported to have shown some gas saturation.

The Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan anticline, was drilling at 5,425 feet on September 12. It has been troubled with water shortage and another well was drilled in a near-by arroya. The additional supply was reported, however, to be insufficient and the state land board gave the company permission to lay a line to an old irrigation reservoir on the section. This well is supposed to be through the Niobrara and estimates are being made that it will reach the Muddy at 5,700-5,800 feet.

Badger Creek Oil & Gas Co.'s No. 1 Kent, SW cor., Section 2-2n-57, Badger Creek, is shut down at 1,200 feet and rumors of a deal to take over this operation have not been confirmed.

Arapahoe County

MacDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, near Aurora, is cleaning out at a total depth of 5,358 feet.

Lincoln County

Eastern Colorado Oil Co.'s No. 1 State, SE cor. NW, Section 36-14-57, near Hugo, is shut down at 3,425 feet with the tools in the hole while leases are being checked and put in shape. It is supposed to be about on top of the Dakota and will not be drilled into the sand until everything is straightened up. It had good shows of oil and gas at this depth.

Adams County

Hills Dome Lease Development's No. 1 Hills, SE cor., Section 27-3s-64, near Watkins, is still shut down at 3,720 feet, awaiting authority to resume following the probating of the will of Nettie M. Slatt.

Larimer County

The Raddatz Corp.'s No. 1 State, SW cor. NW, Section 16-4n-69, which came in at 3,772 feet in the top of the Muddy sand flowing by heads at intervals of two hours, has been deepened to 3,780 feet and is cleaning out and lowering the 5⅞-inch from 3,460 feet to stop caving. Three 250-bbl. storage tanks are being erected. No official gauge has been made, but it looks like the best well so far completed in that field and will make several hundred barrels. The oil is green, of paraffin base and tests 37 degrees A.P.I.

Jefferson County

Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is shut down at 3,936 feet.

Park County

South Park Oil Co.'s No. 1 Milligan, NE cor. SE, Section 13-8s-76, near Jefferson, is drilling in a dry hole at 2,437 feet and carrying the 6⅝-inch at 2,432 feet. It is in a lime stratum which at the outcrop lies just above the Dakota. It has a show of gas at this depth. South Park Oil Co.'s No. 1 Esche, SE cor. NW, Section 5-9s-76, is bottomed at 2,460 feet and underreaming the 8¼-inch to shut off water. The water, which was standing 1,600 feet in the hole, was bailed down to 800 feet and the show of oil and gas increased slightly.

Rio Blanco County

California Co.'s No. 1 California-Raven, NW SE, Section 30-2n-102, Rangely Dome, is drilling at 2,365 feet in shale. Magnolia Petroleum Co.'s No. 1 Maddock, C NW SE, Section 9-2s-96, Piceance Creek, is resuming after straightening hole and cementing the 13⅜-inch at 1,405 feet.

Archuleta County

Standard Oil Co. of Colorado's No. 1 Fitzhugh, NW SE SW, Section 34-22-1e, Chromo Dome, drilled through an artesian water flow and at 549-67 feet cut a sand showing both oil and gas with the water. The 10-inch is at 506 feet and a string of 8¼-inch will be run and an attempt made to shut off the water and test the sand. A year ago this well had a show of oil at 310 feet which the drillers estimated at 5 to 10 bbls. per day. It is supposed to be in the first Dakota sand. Same company's No. 1 Brooks, NW cor. NE, Section 2-32-2e, Price Dome, is standing at 60 feet.

LaPlata County

McGarr Petroleum Corp.'s No. 1 Sanchez, SE cor. NE, Section 27-33-12w, Red Mesa district, which has been standing for nearly a year at a total depth of 3,320 feet, was shot with 260 quarts and is cleaning out bridge 600 feet from top. Several sands in the Dakota were cut in this well and the top sand at 3,205-45 feet was shot last December. Tankage with a capacity of 1,500 bbls. was almost filled in swabbing and bailing tests. The company is erecting a small skimming plant and will market its products in that district.

J. W. Irwin & Co.'s No. 1 Doescher, SW cor. NW, Section 29-33-13w, has recovered tools and is preparing to resume at a total depth of 2,470 feet.

NEW MEXICO

Lea County

Drilling operations in the Hobbs Pool, which have been at a standstill since April, were resumed this week when the Gypsy Oil Co. made a location and began digging cellar for its No. 1 East Grimes, SW NE SE, Section 33-18-38, near the Hobbs townsite in the southeastern part of the field. This well was spotted when the Midwest Refining Co.'s No. 29 Turner, C SW SW, Section 34-18-38, was put on production on September 1 after having been shut in since

(Continued on Page 103)

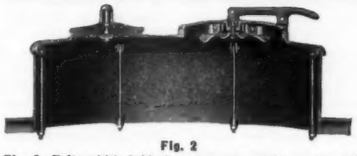

Fig. 2

Fig. 2—Bolts which hold the cover vapor-tight are located within the manhole and can be reached only when the handhole in the cover is unlocked and open.

Fig. 3

Fig. 3—View of the handhole cover closed, ready to lock with padlock. Handhole can be opened only when the handle is raised. (See Fig. 4). This releases the three clamps on the inside. Handhole cover is hinged to manhole cover.

Fig. 4

Fig. 5

Fig. 6

Fig. 5—This four-inch emergency vent cover is held vapor-tight with center bolt (see cross section Fig. 2) until heat from fire melts the fusible nipple under the bolt head. This permits pressure to raise the cover a fraction of an inch to relieve excess pressure as shown in Fig. 6.

Fig. 7

Fig. 7—The new Butler manhole is bored for threading in any type of vacuum and pressure vent for normal venting. The Butler duplex vent valve shown opposite is supplied at extra cost. It has removable fire screens and valves and may be locked against turning out with lock nut on the under side of manhole cover as shown in Fig. 1.

In Butler prices are reflected not only low commodity prices, but also savings incident to volume production and economies in transportation, installation labor, time and overhead costs to be effected by concentrating your buying on and charging responsibility to a single reliable source of supply. Regardless of how large or how small are your requirements, the Butler organization can fulfill them better from every standpoint. Permit us to submit proposal to prove our contention.

THE new Butler manhole embodies the features that oil men want. It has already been adopted by many as standard equipment. It is thief proof when locked. It is evaporation proof. It cuts down the hazards of fire and explosion to the very minimum. Either the cover of the manhole or the hinged and lockable 6-inch handhole cover may be quickly opened for gauging and inspection purposes.

The cover is cast steel with recess for gasket. It is held vapor-tight by means of bolts hinged to the under side of the manhole cover. Lugs on these bolts catch under the lower extended edge of the dome collar and are drawn tight with hex nuts. (See Figs. 1 and 2.) These can be loosened only by reaching through the handhole. The cap of this handhole is hinged to the manhole cover. A padlock through the operating lever locks both handhole and manhole against tampering. (See Fig. 3.)

To open the handhole cap the operating lever is lifted. This releases three clamps on the inside which hold the cap vapor-tight. (See Fig. 4.) The fulcrum which operates these clamps is adjustable to keep the proper tension for vapor tightness even after long use. (See Fig. 2.) The operating shaft of the fulcrum works through a machined housing and packing gland.

Also located in the manhole cover is a 4-inch emergency vent opening. Its cover is held vapor-tight with a bolting device which has a fusible section or nipple under the bolt head. (See Figs. 2 and 5.) In the event of fire this fusible nipple melts, releasing the 4-inch cap to relieve pressure. (See Fig. 6.) The opening under this cap is fire-screened and supported with coarse screen to prevent suction of fire into the tank. (See Figs. 1 and 2.)

The new Butler manhole is also bored and threaded for any type of vacuum and pressure vent valve. At extra cost the Butler duplex vent is fitted in and locked with lock nut when specified. This vent has removable fire screens and valves and when furnished on the new Butler Butt-welded storage tanks is set to relieve pressure at one pound and vacuum at one ounce. At this pressure practically all evaporation losses are prevented.

The new Butler manhole provides convenience, safety and saving in one compact unit. It makes unnecessary all extra apparatus and attachments offered to accomplish these purposes. Butler Butt-welded storage tanks equipped with this new manhole represent extra storage tank value for which you pay no premium.

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Six Completions in California Area

Largest in North Dome of Kettleman Hills, Flows 6,480 Bbls. Natural. Two Good Wells at Los Cerritos

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Sept. 19.—There were six wells put on production in California during the past week, the largest of which was the Standard Oil Co.'s No. 41-3 P, a new well in the north dome of Kettleman Hills. This project, which just about completes the Standard's drilling program in the Kettleman Hills Field, was brought in under a natural flow doing 6,480 bbls. of 38.2 gravity oil per day from 7,926 feet, the hole having been finished with a 6⅝-inch liner carrying 625 feet of perforated and 6,000 feet of 3-inch tubing. It will probably be several weeks before any additional completions are chalked up at Kettleman Hills, although operators in that area are working on a number of potential producers. The completion of new wells is of minor consequence in that field at present due to the decision of operators to limit the production of the field to 60,000 bbls. per day until January 1, 1932. This represents the most severe curtailment in California at the present time, as Kettleman Hills has a conservative rated potential of 200,000 bbls. per day. If developments warrant, it is assumed stringent curtailment will be maintained at Kettleman Hills through 1932, although a minor adjustment will probably be made in the allowable maximum.

Los Cerritos Completions

There were two exceptionally large wells finished in the Long Beach Field and a check indicates the probable completion of several more during next month. The Dixie Oil Corp.'s No. 1 Sedgwick in the Los Cerritos section of the Long Beach Field blew in a few days ago but was subsequently brought under control after painting the landscape during the 10-hour period in which it was running wild. This former producer, redrilled and deepened to 7,934 feet, blew in while the crew was coming out of the hole with a string of 4½-inch drill pipe. During the initial 24 hours following completion it made 2,325 bbls. of 28.9 gravity oil and 3,200,000 feet of natural gas. This well has had a rather varied career as it was originally finished several years ago as a 300-bbl. pumper during the Los Cerritos drilling boom. It was subsequently taken down to the 7,500-foot level and recompleted flowing 1,850 bbls. per day. After reaching the settled stage, deepening operations were again started and work climaxed a few days ago when it blew in unexpectedly. It has produced 112,000 bbls. of crude oil since its original completion and will undoubtedly double this figure within a few months as it has approximately 400 feet of new formation from which to pull.

The Two & One Oil Co.'s No. 1 Hughes, another former upper zone producer which was redrilled and deepened to the lower zone, was another big well finished in the Long Beach Field during the past week. This well, brought in under control, although only after considerable difficulty, registered an initial flow of 2,070 bbls. of clean 28.7 gravity oil per day from 7,798 feet. The Ring Oil Co.'s No. 3 Zenith, bottomed at 8,066 feet and finished with a 4½-inch liner including 286 feet of perforated, was good for 510 bbls. of 28.2 gravity oil per day under a natural flow upon completion during the early part of the week. The recompletion of these three wells has greatly stimulated interest in the production possibilities of the Los Cerritos section of the Long Beach Field and additional work has already been started to redrill and deepen a number of other wells in the immediate neighborhood. There are 11 wells already being deepened and work is expected to be started on several other upper zone producers in the near future.

Producers Sales Agency

The Oil Producers Sales Agency, which is rapidly becoming a factor of considerable importance, added 21 independent producers to its membership list during the week. New members elected on September 16 include Knudsen & Schmidt; Frew Corp.; Powell & Harris Oil Co.; W. N. Howard, federal receiver of the State Co.; Turner Petroleum Co.; Edward Heimes; Coloma Oil Co.; O'Brien & Webber; J. B. Demaria, trustee of Rawco-Woodford Syndicate No. 1; Fynney & Baptiste; R. L. Goetz; G. C. Baker; A. B. Kneeben; M. H. Mosier; the Petroleum Co.; W. G. Saffold; G. E. Bawles; George A. Morgan; C. H. Griffith; Hugh Adams; Dean Love; H. G. Henderson; N. L. Scheinbaum, and the Red Top Oil Co.

The board of directors of the Oil Producers Sales Agency of California has made a declaration of policy in order that producers might become familiar with the future policy to be pursued. The directors announced that the agency will approve sales of crude oil produced by its members to all purchasers without discrimination. The agency will not withhold approval of crude oil sales pursuant to agreement or understanding among its members or with others for the reason that the purchaser or purchasers thereof fix or refuse to fix their sale prices for refined products at any given level. The need of the oil industry is for more and better markets for its products, and to that end the purpose of the agency is to procure the sale of production of its members and relieve through collective bargaining the distress of those engaged in the oil industry so that a fair market may be obtained for all the crude oil produced under proper curtailment based upon economic supply and demand. The agency asserts that although it has a general interest in the effect of the sale price of gasoline and other refined products upon the sale price of crude oil it has no control over the price of refined oils and that it cannot and will not in any way attempt to control or fix the same. The board of directors also decided that the agency will encourage the regulation of crude oil production in California in order that the economic supply and demand may be reasonably balanced but curtailment to a point below such economic supply would be discountenanced by it. The agency also reserves the right of independent investigation and if as a result it determines that the schedules for production as promulgated by the oil umpire for California prevent waste in the most reasonable and practicable manner and tend to properly balance economic supply and demand and permit the production of a fair share of the oil by its members then the agency may approve such schedules upon confirmation by independent investigation.

Important Declaration

One of the most important declarations is that the agency shall expend a substantial amount of its income and energies in collecting and disseminating information to its members and to the public generally relative to the oil industry in all its phases in order that this may have a stabilizing effect upon the industry provided, of course, it is not used directly or indirectly to arrive at an agreement in violation of the anti-trust laws of the United States or the State of California. To facilitate the transaction of current business, the by-laws of the agency have been amended to provide that the executive committee shall exercise all the powers and duties vested in the board of directors when it is not in session, except the election of officers, the power to punish or expel members, the power to repeal or amend by-laws and the power to levy assessments. In conformity with this new policy an executive committee consisting of Floyd D. Anderson of the Ohio Oil Co.; Ralph B. Lloyd, Lloyd Corp.; R. R. Templeton, Pacific Western Oil Co.; S. B. Mosher, Signal Oil & Gas Co.; R. A. Broomfield, Sr., Barnsdall Oil Co.; William Keck, Superior Oil Co., and C. P. Watson, Milham Exploration Co., was duly elected on September 16, 1931.

Fire at Kettleman

The Kettleman Hills Field was visited by a costly and disastrous fire early this week when The Texas Company's natural gasoline plant took fire following an explosion of undetermined origin and was completely destroyed. The explosion occurred a few minutes before midnight and fortunately at a time when only two men, a fireman and a plant operator, were on duty. Both escaped injury except for slight burns on the hands and face. The Texas Company's plant covered approximately one acre and was located about 2,000 feet from the Milham Exploration Co.'s discovery well and 6 miles southeast of Avenal. Tentative plans have already been completed to rebuild the destroyed plant, although final action is being held in abeyance. Natural gas from Kettleman Hills, formerly treated in this plant, has been diverted to other adjacent plants.

North Belridge Well

The Belridge Oil Co. has officially completed its No. 48 in the North Belridge Field of Kern County as a commercial producer, although it failed to result in a natural flow. During the preliminary production test this new well flowed for about two hours but subsequently died. Natural gas was then injected between the tubing and casing and as a result of this gas lift the well was completed doing 585 bbls. of clean 39.3 gravity oil per day. Approximately 1,000,000 feet of natural gas is being injected daily. This new well is a direct offset to the Union Oil Co.'s No. 17, a new well in Section 36-27-20, completed a few months ago. With the completion of the Belridge Oil Co.'s No. 48 at 5,428 feet, there are six wells producing from the Temblor in the North Belridge Field. The Union, Continental and Reward have one well each and the Belridge Oil Co. three. Two incompleted drilling projects of the Belridge Oil Co. complete operations in this field at present.

General Petroleum's No. 1 Berry, a deep Temblor test under way in the South Belridge Field of Kern County, was still in the brown shale at 6,450 feet but is expected to encounter the top of the Temblor shortly. There were no developments of unusual interest in the Lost Hills Field where the General Petroleum and Lincoln Petroleum Co. are endeavoring to develop Temblor production similar to that encountered at North Belridge and in the Kettleman Hills Field.

Potrero

The Beloil Corp. focused the attention of operators on the town lot section of the Potrero Field of Los Angeles Basin a few days ago by recompleting No. 1 Coffin flowing 980 bbls. of clean 38.2 gravity oil and 3,000,000 feet of natural gas per day. This well, taken over from the Richfield Oil Co., was bottomed at 6,508 feet and finished with a 5⅝-inch liner. It is producing from a new virgin zone and has revived interest in the possibility of developing substantial production. Thomas Barton, York & Smullin, Universal Consolidated and the Getty Oil Co. have already started cleaning out former upper zone producers preparatory to deepening operations. The Potrero Field was discovered by the Associated Oil Co. approximately three years ago and has passed through several drilling campaigns, none of which up to the present, however, has resulted in the development of consistent substantial production. The Associated's discovery well was located on the Potrero Country Club property but this lease embracing 120 acres was subsequently quitclaimed. The Wilshire Oil Co. later acquired a lease to this property and a few months ago finished a 1,200-bbl. well from the 3,750-foot level. This well has since declined, although it is still on steady production. The Wilshire recently staked location for its second project on this lease between the thirteenth and fourteenth fairways of the Potrero golf course. The Superior Oil Co. acquired a little additional acreage adjacent to the new structure which it contemplates testing out at

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	68,690
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	196,829	28,118	88,557	12,651	1,379,588	2,527,306
Gasoline	78,305	11,187	251,193	35,885	9,684,078	14,212,192
Kerosene	.....	.....	.....	.....	187,934	.....
Coastwise—						
Crude oil	348,002	49,715	521,041	74,434	16,079,490	11,096,219
Fuel oil	162,430	23,204	341,118	48,731	8,971,065	12,300,338
Diesel and gas oil	24,822	3,546	48,320	6,189	1,130,716	1,180,938
Gasoline	244,102	34,872	341,107	48,730	10,069,105	9,165,301
Kerosene	6,250	893	9,772	1,396	226,307	145,134
Naphtha distillate	.....	.....	.....	.....	4,952	.....
Exports—						
Crude oil	159,320	12,760	250,648	35,807	5,447,007	4,919,320
Fuel oil	124,661	17,809	246,955	35,136	9,764,540	12,852,924
Diesel and gas oil	42,583	6,083	58,908	8,415	2,628,305	3,248,910
Gasoline	13,610	1,944	108,503	15,500	6,264,772	11,511,445
Kerosene	98,325	14,041	.....	.....	1,223,039	2,832,471
Lubricants	.....	.....	.....	.....	36,353	14,680

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	279,088
Gasoline	73,950	10,564	.....	.....	665,389	931,097
Lubricants	.....	.....	.....	.....	37,306	24,774
Coastwise—						
Fuel oil	30,120	4,303	48,116	6,874	2,678,135	2,446,144
Diesel and gas oil	6,810	973	.....	.....	346,660	206,256
Gasoline	139,626	19,947	144,287	20,612	3,240,767	2,929,164
Kerosene	7,882	1,140	10,348	1,478	242,370	176,747
Naphtha distillate	.....	.....	.....	.....	49,780	.....
Exports—						
Crude oil	60,665	8,666	.....	.....	168,481	3,075
Fuel oil	70,559	10,080	72,140	10,306	1,202,690	662,135
Diesel and gas oil	.....	.....	92,234	13,176	386,942	398,829
Gasoline	198,369	28,324	.....	.....	8,161,211	2,857,542
Kerosene	66,499	9,500	.....	.....	629,067	508,528
Lubricants	5,593	799	.....	.....	25,693	19,849

Newport just south of the Huntington Beach Field and the company's initial wildcat in this area should begin making hole within 10 days. There were no further developments of outstanding importance in the Huntington Beach town lot area although exploration work is still under way.

Elwood

The Bankline Oil Co. has indicated its intention of drilling a new well on its Permit No. 89 in the Elwood Field of Santa Barbara County and construction work is expected to get under way shortly. The Barnsdall and Rio Grande recently spudded in No. 19 Bell Luton but with this exception drilling operations in this field are negligible. In the Ventura Avenue Field, the Pacific Western Oil Co. put No. 7 Orton on a production test at 7,174 feet but this well has not yet shown any indications of resulting in commercial production. The General Petroleum has reached 6,850 feet in No. 3 More, a deep Sespe test in the Goleta gas field of Santa Barbara County, and, although the outlook is not any too promising, the company has not yet shown any indication of suspending work. Those interested in this area are watching the outcome of work on the Ohio Oil Co.'s No. 1 Oakley which, while correlating considerably deeper than wells of the General Petroleum on the More Ranch, may result in commercial gas production.

The Milham Exploration Co., which recently proved up the existence of a new deep gas zone in the Buttonwillow gas field of Kern County, is rigging up No. 1 Crites preparatory to deepening this well from 2,672 feet to the new third zone at 3,200 feet. The Signal Oil & Gas Co. is making preparations to drill a wildcat between Belridge and Devils Den in Section 15-26-19 and spud is expected to be made some time during the next few weeks. T. A. Piper has started a new wildcat just east of the Mount Poso Field of Kern County in Section 15-27-29 and the outcome will be watched with considerable interest, although the failure of several adjacent wildcats does not make the area any too promising. Knudsen & Schmidt failed to secure a satisfactory water shut-off in their No. 1 Avenal, a wildcat in the Pyramid Hills of Kings County, and this Temblor test, which showed some promise at 4,304 feet, has been recemented.

CALIFORNIA OIL TAX TO AID UNEMPLOYED

WASHINGTON, D. C., Sept. 21.—Growing attempts to tax the oil industry to care for distress resulting from unemployment in all lines of industry are attracting attention here. News now comes from California that an effort will be made in that State to place a severance tax on crude oil of 2 or 3 cents per barrel which it is estimated would raise a fund in excess of $25,000,000 annually for that purpose. State Treasurer Charles G. Johnson proposes to make a recommendation to Gov. James Rolph that such a tax be embodied in a bill to be placed before the next session of the legislature.

Mr. Johnson declares that plan would be a "painless method" by which needed relief for the unemployed might be obtained.—C. E. K.

COLON OUTPUT

Production of Colon Oil Corp.'s subsidiary in Venezuela for the week ended September 12 was 149,566 bbls.

TURNER VALLEY UNIT OPERATION PLAN BEING DISCUSSED IN DETAIL

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ont., Sept. 19.—The Alberta provincial government's scheme for unit operation of the Turner Valley Field is now being discussed and considered by the various interests involved. The scheme, as already outlined, is for 43 companies in Turner Valley to pool their resources perpetually in a unitization program to be directed by an administrative staff of three experts. This staff is to have absolute control of production from the field with power to designate from which wells production will be taken.

As a gas conservation measure, the Alberta government had previously ordered the restriction of the gas flow from the field to 100,000,000 feet a day. This restriction will be enforced whether the unitization scheme is adopted or not. The unitization scheme was worked out by a subcommittee, headed by Frank P. Fisher, and which was requested by the Government to devise a plan which would give the operators the largest possible return from this restricted flow.

Output to Be Prorated

Under the unitization scheme, the output from the 43 companies concerned is to be prorated, on the basis of the recorded output of the various companies for March, April and May of the present year; and the various companies will receive their proportionate revenue from the naphtha sale. Wells which are uneconomic naphtha producers will be shut in, while the economic wells will be backpressured to secure the maximum naphtha recovery from the minimum gas flow.

As partial compensation for this restricted naphtha production, independent companies will be allowed to participate to a certain extent in the revenue from the sale of residual gas to the Canadian Western Natural Gas, Light, Heat & Power Co., which is to receive a slightly higher price from consumers and is to draw its entire gas supply from the Turner Valley Field.

The proposal has since been discussed by independent operators, who have formally requested the government to increase the maximum permitted flow to 200,000,000 feet a day. At last reports, no definite decision had been reached by the operators as to acceptance or rejection of the scheme itself. The advisory committee on conservation has held several conferences on the scheme as proposed by the subcommittee, and is reported to have recommended its early adoption. Independent operators are meanwhile being provided from official sources with statements showing their estimated revenues under unitization.

Results of Unitization

Detailed official figures showing the prospective returns of the companies have not been made public, but there have been unofficial compilations. The August pipe line runs represented an aggregate revenue from naphtha sales of $197,732; and according to a careful compilation, revenue under unitization would be around $171,000. Frank P. Fisher, technical adviser to the government, has stated that a yield of 50,000 bbls. of naphtha could be estimated under unitization. This, at around $3 a barrel would represent $150,000 a month. The additional revenue to make up the $171,000 would come from gas sales. Cost of operating the scheme is estimated by Mr. Fisher at $4,000 a month.

Average monthly production for individual companies for the months of March, April and May is to be the basis on which the aggregate revenue is divided. The average of the various companies is as follows:

	Bbls.
Alberta Pacific Consolidated	779
Alberta Federated Oil Co.	629
British Dominion Oil & Dev. Corp.	506
Calmont Oils	1,106
Commonwealth Petroleums	1,994
East Crest Oil Co.	9,925
Freehold Oil Corp.	553
Homestead Oils	1,603
Midfield Oil Co.	760
Mercury Oils	21,434
Miracle Oils	6,112
Mill City Petroleum Co.	132
Model Oils	5,214
New McDougall-Segur Oil Co.	913
Okalta Oils	2,374
Regent Oil Co.	811
Richfield Petroleums	65
Spooner Oils	1,226
Structure Oil & Gas	2,029
Wellington Oil & Gas Co.	2,108
Total	60,263
Acreage Drilled by Imperial	
Advance Oil Co.	2,426
Associated Oil & Gas Co.	1,964
Baltac Oil Co.	451
Hargal Oils	328
Home Oil Co.	6,372
Lowery Petroleums	1,808
Merland Oil Co.	208
Sterling Pacific Oil Co.	1,298
Total	14,855
Imperial Subsidiaries	
Dalhousie Oil Co.	3,811
Foothills Oil & Gas Co.	4,676
Mayland Oil Co.	10,884
Royalite Oil Co.	25,894
Southern Lowery	484
South West Petroleum Co.	1,611
Total	47,360

There are a number of companies which did not figure in the pipe line deliveries

(Continued on Page 95)

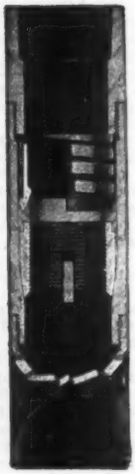
IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-35	7,350	br. sh. drilling
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-35	3,450	suspended
Ohio Oil Co., No. 1 Goleta, Santa Barbara Co.	16- 4-28	3,611	hd. sd. drilling
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,532	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	5,000,000 ft. gas
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	6,825	Sespe form.
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	2,030	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	2,053	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	2,047	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,831	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	2,051	suspended
Bowles Oil Co., No. 140 Goleta, Santa Barbara Co.	21- 4-28	2,065	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	2,004	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	2,012	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	2,010	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	2,010	suspended
Bellview Oil Co., No. 159 Goleta, Santa Barbara Co.	24- 4-29	2,099	suspended
Cochran, J. H., No. 1 Naples, Santa Barbara Co.	7- 4-29	5,134	suspended
Strickland & Tippet, No. 1-A Goleta, Santa Barbara Co.	19- 4-27	4,500	cleaning out
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
C. C. M. O. Co., No. 2-A Rincon, Ventura Co.	23- 3-24	10,030	testing
Continental, No. 1 Rincon, Ventura Co.	23- 3-24	6,640	to set pipe
Bell, H. H., No. 1 South Mountain, Ventura Co.	22- 3-21	730	sd. sh. drilling
Pure Oil Co., No. 1 S. F. Canyon, Ventura Co.	15- 4-21	3,591	suspended
San Pedro Oil Co., No. 2 Sespe, Ventura Co.	13- 4-21	3,410	cleaning out
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-21	5,020	hd. sd. drilling
Mex Cal Oil Co., No. 1 Conejo, Ventura Co.	12- 1-20	240	suspended
Graham & Loftus, No. 1 Goose Lake, Kern Co.	30-27-22	1,730	cleaning out
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	suspended
Milham Expl. Co., No. 7 Buttonwillow, Kern Co.	6-28-23	3,220	gas—shut in
Calif. Oil Producers, No. 2 McKittrick, Kern Co.	30-30-22	6,175	br. sh. drilling
Purman, T. H., No. 1 McKittrick, Kern Co.	32-29-21	rig	rigging up
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,367	suspended
General Pet., No. 1 Belridge, Kern Co.	30-28-21	6,450	br. sh. drilling
Wallace, K. C., No. 1 Beiridge, Kern Co.	32-29-21	4,222	suspended
Rio Cal. Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy., No. 1 Arvin, Kern Co.	12-30-28	3,580	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	5,910	suspended
Osborn, Colter, No. 1 Weed Patch, Kern Co.	15-30-29	3,465	suspended
Osborn, Colter, No. 2 Weed Patch, Kern Co.	15-30-29	2,000	hd. sd. drilling
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	6,150	suspended
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,600	suspended
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	21-26-18	2,000	br. sh. drilling
Temblor Dev. Co., No. 1 Blackwell Corner, Kern Co.	14-26-19	1,030	suspended
United Kern Pet., No. 1 Mojave, Kern Co.	26-10-14	1,065	suspended
Meridian Oil Co., No. 1 Mojave, Kern Co.	11- 9-15	3,830	cemented
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-11- 9	511	redrilling
Harding, J. B., No. 1 Mojave, Kern Co.	5-10-10	1,028	gr. sd. drilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	6,197	suspended
Panorama Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-31-21	4,019	suspended
Kent & McDonald, No. 1 Carrizo, San Luis Obispo Co.	3-32-22	2,031	br. sh. drilling
Trav-El Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-32-22	2,450	cleaning out
Paso Robles Synd., No. 1 Paso Robles, San Luis Obispo	34-27-11	4,040	suspended
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-15	4,615	suspended
Cent. Coast Inv., No. 1 Atascadero, San Luis Obispo Co.	1-28-12	rig	suspended
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	24-28-12	1,475	sd. sh. drilling
Pacific Inland, well No. 1, Monterey Co.	19-23-15	1,345	fishing
Brown, W. F., well No. 1, Monterey Co.	13-23-14	800	suspended
Irma Investment Co., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,345	gas well—idle
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	rig	suspended
Kettleman Lakeview, No. 1-A Dudley Ridge, Kings Co.	20-23-20	1,095	recemented
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-23-17	4,315	recemented
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-18	1,148	suspended
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	7,370	hd. sd. drilling
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	2,120	redrilling
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-24-27	2,180	redrilling
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	34-17-24	2,092	suspended
Ellis & Stanford, No. 1 Tulare Lake, Tulare Co.	20-24-23	1,498	suspended
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	955	hd. sd. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,195	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	2,520	redrilling

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	6,595	sd. sh. drilling
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	6,235	suspended
Mesmer City Corp., No. 1 Mesmer, Los Angeles Co.	24- 2-16	6,715	abandoned
Westwood Oil Co., No. 2 Hermosa, Los Angeles Co.	6- 4-14	2,151	cleaning out
Baxter Pet., No. 1 Hermosa, Los Angeles Co.	5- 4-14	mtl.	building rig
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	2,700	suspended
Pacific Shore Oil Co., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
Smith, J. O., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
Wilmington Consd., No. 1 Watson, Los Angeles Co.	17- 4-13	1,012	suspended
Pedro Pet. Corp., No. 1 San Pedro, Los Angeles Co.	14- 5-14	rig	suspended
Brubaker, W. O., No. 1 Van Nuys, Los Angeles Co.	11- 2-15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	2,200	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	20- 2- 9	2,110	sd. sh. drilling
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,370	suspended
Jones, W. L., No. 1 Bell, Los Angeles Co.	31- 2-12	rig	suspended
Weist Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	4,842	cleaning out
Blinn & Gray, No. 1 Montebello, Los Angeles Co.	6- 2-11	4,568	cleaning out
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,919	suspended
Yellowstone Oil Co., No. 2 Alhambra, Los Angeles Co.	19- 1-12	2,015	suspended
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	810	br. sh. drilling
Caballero Estates, No. 1 Calabasas, Los Angeles Co.	23- 1-16	1,235	hd. sd. drilling
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,960	suspended
Simi Oil Co., No. 1 Calabasas, Los Angeles Co.	18- 1-17	1,011	sd. sh. drilling
West Coast Waste Oil, No. 1 Van Nuys, Los Angeles Co.	14- 1-16	rig	suspended
Superior Oil Co., No. 1 Newport, Orange Co.	27- 6-10	rig	rigging up
Ajax Pet., No. 1 Newport, Orange Co.	21- 6-10	4,975	hd. sd. drilling
Beck, Alfred, No. 1 Corona, Riverside Co.	8- 4- 6	1,110	suspended
Alberta Oil Co., No. 1 Elsinor, Riverside Co.	35- 2- 2	3,435	suspended
Duncan, N. L., No. 1 Sagebrush, Riverside Co.	8- 4- 6	1,157	suspended
Colan Dev. Co., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392	redrilling
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15	600	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	5,124	hd. sd. drilling
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18- 2	1,243	suspended
Itasca Pet. Co., No. 1 Mesa, San Diego Co.	33-18- 1	1,570	fishing
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 6- 8	5,250	suspended
Oklahoma Oil Corp., No. 1 Palms, San Diego Co.	25-11- 8	510	redrilling

FOR PERFECT PERFORMANCE



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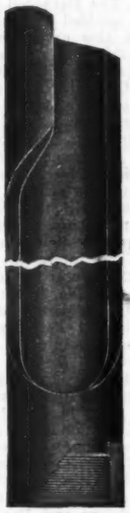
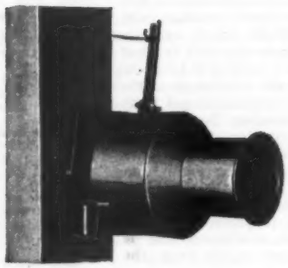


Forged Steel Wall Hook



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American Rotary Milling Tools
American Myracle Sucker Rod Sockets
American Surface Bit Blades for Rock Bits
American Drill Pipe Float Joints
American Casing Suspender and Blowout Preventer
American Lead Plug
American Rock Bit Cone Fishing Sockets
American Steel Whipstocks
American Inside Pipe Cutter for Drill Pipe or Casing
American Adjustable Steel Rig Braces
American Fish Tail Bits
American Pipe Rackers
American Boltless Hose Clamp
American Shot Packed Barrel
American Cactizona Water Treatment
American Flow Packer

AMERICAN PRODUCTS SOLD THROUGH LEADING SUPPLY STORES

Southwestern Indiana Promised Play

Operators for Both Oil and Gas Interested in Development. New Pool Opened South of Owensboro, Kentucky. Michigan Operations

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Sept. 21.—In the Central West Field, comprising the old Lima Field, Central Ohio, Indiana, Illinois, Kentucky and Michigan, although one or more wells are reported from each of the divisions, some fairly good gas wells being found, there is a scarcity of oil wells of any size.

In the McCutchenville Field, south of Tiffin and about 65 miles southeast of Toledo, Pheron, Cook, Miller and others' No. 2 on the Bert D. Ramsbury farm, Section 17, Tymochtee Township, Wyandot County, was shot with 120 quarts. The Trenton lime was topped at 1,340 feet and drilled 80 feet in the lime to a total depth of 1,420 feet, which showed close to 750,000 feet of gas, but no oil, as was the case in No. 1 on the same farm, which had better than 1,000,000 feet of gas and a heavy spray of oil when opened up. This firm has secured a large acreage in that area and expects to keep busy with the drilling tools until the winter comes on. Same parties expect to start a well on the Billhart-Bolman farm, being the next to be drilled. In the same township, John Greege and others have their well completed, a test on the F. Flechsenhar farm, Section 22, which topped the Trenton at 1,504 feet, and also went 80 feet in the Trenton to a total depth of 1,584 feet, being credited with an initial production of 15 bbls.

Noble Wood, geologist, who was present at the shooting of the Ramsbury farm well, thinks Wyandot County will show much gas and also pools of oil. Wyandot County in the early nineties had a very nice oil production, but it did not hold up like such counties as Wood, Hancock, Allen, Auglaize, Mercer, Sandusky, Van Wert, Seneca and Lucas, so when the big Trenton Rock gushers came in many of the Wyandot County oil men rushed for the big production areas and Wyandot County was forgotten until just recently.

Harpster and others still have their rig up on the Lewis C. Beis farm, Section 11, Crawford Township, Wyandot County, and reports are that they are planning to start work on it shortly.

Adrian Tester has started the drill on the Charles Miller farm, Section 3, Mississinewa Township, Darke County, south of Lima.

The test of Gebhart and others on the Walter Rogers property, Section 2, Fitchville Township, Huron County, was a light gas well.

On the 140-mile trip by auto to McCutchenville, through the old field in Sandusky County which showed many large oil wells in the early days, not even a drilling well could be seen, although numerous pumping jacks were working in the Four-Mile House Pool, along the route from Perrysburg to Fremont, then down through the Tiffin Field in Seneca County, which lies just north of the Wyandot County Fields.

CENTRAL OHIO

Ten completions were reported for the Central Ohio Field, one a dry hole and nine gas producers, a fairly good record for the amount of work under way at present. The past week shows renewed activity in new wells starting, rigs up and locations. The greatest activity is in Stark County, where there are 31 wells drilling and 3 rigs up, and also 3 locations staked for new wells.

In Ashland County the Ohio Fuel Gas Co. brought in a light gas well in No. 1-5525 Ira V. Culver farm, Sections 14-15, Jackson Township.

In Lorain County, Columbia Township, Dillon & McFredericks have a duster in No. 1 William R. Squires farm, Lot 88, at a depth of 2,685 feet.

In Medina County, Chatham Township, Harris & Behm are starting No. 20 on the Gilman Brothers property, Section 20.

In Holmes County, Lydic Oil & Gas Co. has a light gas well in No. 2 F. C. Close farm, Lot 23, Monroe Township, in the Berea sand at 867 feet.

In Coshocton County, Perry Township, Murphy and others are drilling on the Myers & Mosholder farm, Section 15, Perry Township.

In Summitt County, Bath Township, Wiser Oil Co. has a light gas well on the Shiltz & Bailey farm, Lot 85, Bath Township, at 3,573 feet.

In Muskingum County, W. H. Atha is drilling No. 1 on his fee property, in the First quarter section of Falls Township.

In Fairfield County, Richland Township, Patton & Bishop have a light gas well in a second test on the Henry Reynolds farm, Section 27, in the Berea sand from 736-40 feet. City Natural Gas Works test on the Nellie C. Hummel farm, Section 35, Berne Township, is in the Berea sand from 663-70 feet.

In Athens County, Lodi Township, the Fairfield Gas Co. is drilling on the W. M. Harris farm, fractional Section 17.

In Stark County, Jackson Township, Brendall and others are drilling Nos. 4 and 5 Lake Cable Land Co. land, No. 4 being in Section 14 and No. 5 in Section 23; also drilling No. 1 Joseph Warth farm, Section 16; No. 1 J. A. Lauby, Section 12, same township. Boettler and others are drilling No. 1 E. Lewis farm, Section 16. Kime and others are drilling No. 1 Margaret Taggart farm, Section 26, and the East Ohio Gas Co. has a rig on the Eva M. Sisler farm, Section 16, all in the same township.

In Knox County, the Upham Gas Co. has a light gas well in No. 1 B. B. Workman farm, Section 7, Brown Township, in the Clinton lime at 2,702 feet.

In Guernsey County, W. C. Urban and others have a fair gas well in No. 1 John Brock farm, Section 14, Jackson Township, in the Berea sand from 1,090-1,110 feet.

In Belmont County, Somerset Township, A. C. Peters and others' No. 2 Charles McLaughlin farm, Sections 32-36, is a light gas well in the Berea sand from 1,965-1,974-1,977 feet. Peters, Purdy and others have a rig in for No. 2 W.

(Continued on Page 89)

Few Completions in Eastern Fields

Little Deep Drilling in Southeastern Ohio District at Present Time. Most Wells Completed in Shallow Areas

By Staff Correspondent

PITTSBURGH, Pa., Sept. 21.—Reflecting the recent drain upon Pennsylvania Grade crude oil stocks, the Eureka Pipe Line Co. has recalled its request of June 15 that operators whose tanks were connected to the lines of the Eureka Pipe Line Co. strictly adhere to the Oil Conservation Board's schedule of allowable production of 70 per cent. At that time, the tankage of the Eureka Pipe Line Co. was rapidly being filled and a serious congestion threatened a possible embargo. The letter, signed by Allan T. Towl, general manager, states in part:

"At the present time, due to your cooperation, the congested condition, which existed in the Eureka Pipe Line Co. is relieved, and there seems to be no reason, as far as the Eureka Pipe Line Co. is concerned, why producers connected to our lines, that care to do so, should not run all of their oil.

"The Eureka Pipe Line Co. wishes, at this time, to thank you for your cooperation in this matter."

The fifth increase in the price of Pennsylvania Grade crude, since its low of July 29, and a total increase of 60 cents in the price structure, came at a time when stocks of the major pipe line companies in the east had reached the lowest mark since January, 1929, at which time a shortage of this crude was being felt. The price at that time was $4. Shortly after that period, repressuring of the sands in the Bradford, Pa., and Allegheny, N. Y., district increased the runs to a satisfactory point, and then, after a 200 per cent increase at the beginning of the business lull, to a period of overproduction. Economic conditions, with attendant underconsumption, forced the operators into curtailing with the present satisfactory showing.

It is not expected that the present seasonal heavy demand in runs to stills can be maintained, and with the recent 10 per cent increase in allowable production, indications point to more even balance of consumption and production, if the proration agreement is maintained, which will preclude a possibility of a great amount of new production.

SOUTHEAST OHIO

There is very little deep drilling being done in the Southeast Ohio Field at the present time, and such Clinton sand wells as have been recently reported have not been shot. Most of the completions have been confined to shallow areas, especially Medina County, and in the Berea and Grit sands. During the past week, but two completions were recorded, one of these a very fair producer.

E. R. Edson & Son Co. continued their string of very good wells in the shallow drilling in Chatham Township, Medina County, with No. 19 on the George W. Packard farm, Lot 4, and Section 13. It went to a depth of only 391 feet and after shot produced 90 bbls. the first day. This is about the largest of the shallow wells in this section.

In Section 16, Hanover Township, a mile south of Clay Lick in Licking County, William Smith drilled a test on the J. F. Morrison farm in the Berea sand at a depth of 711 feet. It was a dry hole and will be plugged and abandoned.

In Medina County, E. R. Edson & Son Co. are continuing to drill in Section 13, and Section 16, Chatham Township, on the Morris A. and Eva Franks farm, and also on the No. 1 Packard lease. Curtis and Eaken are also drilling in Section 22 of the same township and on the Thomas Brown, Jr., lease. In Washington County operations have declined appreciably. In Palmer district, F. M. Russell and others are drilling on the Alexander Martin farm, Section 14. In Ludlow Township, Homer Newhart and others completed a very small producer on the Maggie Lusk farm in Section 3. In Grandview Township, the Peoples Savings Bank of New Matamoras No. 5 and others are drilling No. 4 on the Jerry Graham farm, Section 12.

WEST VIRGINIA

The West Virginia Fields continue very quiet with but few oil producers completed in a month. During the past week, two small oil wells were completed in the shallow Cow Run sand in Pleasants County, both by H. M. Adams and others. The first, a test on the James Ruckman farm, is reported good for one-eighth of a barrel a day from the Cow Run sand, and the second, also a test and on the Charles Ruckman farm, is showing for a similar amount from the same formation.

From the rest of the field five gas wells were reported and also one dry hole. None of the gas wells was of any size. In Boone County, the Owens Bottle Co. continued to drill No. 6 on the Powell heirs farm in Washington district. They ran into trouble at 2,288 feet and have a fishing job at present but after having tested the Berea sand which showed for over 200,000 feet a day and the Injun sand with a showing of 160,000 feet a day.

In Calhoun County there were three more completions. In Lee district the Crummies Creek Fuel Corp. completed a second test on the Oliver Brannon farm in the Injun sand at 2,343 feet and have a gas well. In the same district, the same operators completed a second test on the D. J. Brannon farm in the Injun sand at a depth of 2,353 feet. It is a very small gasser, but was not shot. In Sheridan district the Chemical Oil Co. drilled a test on the Fling and Rider farm to a depth of 2,083 feet and in the Injun sand. It is gauging at about 95,000 feet a day natural.

In Gilmer County, the Mud Lick Oil & Gas Co. drilled a second test on the T. M. Lynch farm in Glenville district. It went to a total depth of 1,920 feet and was dry in all sands and will be abandoned. In Marshall County the Manufacturers Light & Heat Co. drilled its No. 1,975 on the L. Burley farm in Liberty district deeper to 3,014 feet with a resulting increased flow of gas.

SOUTHWEST PENNSYLVANIA

One completion was reported from Southwest Pennsylvania and it was a small producer. In Independence Township, Beaver County, the Hobbs Oil Co. completed a second well on the James McCoy lease at 1,395 feet and in the Hundred Foot sand. It started off at about 2 bbls. a day.

In Washington County, there are three wells drilling. The Rapp Oil & Gas Co. is down to 1,560 feet on the S. McCauslin farm in West Bethel Township. In the same section, the C. V. Inglefield Co. has reached 2,200 feet on the D. P. Inglefield farm. In Robinson Township a local syndicate is drilling at 1,200 feet in a second well on the William Cain farm and in the limits of the small pool.

In Greene County H. D. Freeland & Co. are drilling their No. 1 well on the Silas Coen farm in Wayne Township

(Continued on Page 89)

Personal Paragraphs About Oil Men

M. H. Rasor, with the McEverlast, Incorporated, of Glendale, Calif., is visiting with relatives in San Angelo, Tex.

* * *

S. P. Wallace, with the Parkersburg Rig & Reel Company, Tulsa, recently made a trip to Colorado for his company.

* * *

R. A. Hockensmith of Okmulgee, Okla., was recently a visitor in Southwest Texas for several days, principally at San Antonio.

* * *

David Trax, engineer with the Gypsy Oil Company, Tulsa, has recently returned from a two weeks' vacation spent at Cloudcroft, N. M.

* * *

J. G. Douglas, paleontologist for the Lago Petroleum Corporation, Maracaibo, Venezuela, for three years, has returned to his home in Baltimore, Md.

* * *

Harry H. Power, petroleum engineer in the production department of the Gypsy Oil Company, Tulsa, is spending his vacation at his home in Spokane, Wash.

* * *

George Eads, assistant purchaser of the Twin State Oil & Gas Company, has returned from a vacation trip to his former home town in West Virginia.

* * *

John E. Dickson, of Oklahoma City, was elected chairman of the board of the Kessler Oil & Gas Company. J. M. Kessler remains as president of the company.

* * *

L. W. Henry, chief geologist for the Richmond Petroleum Company (Standard of California), has returned to Maracaibo from a three-months' vacation spent in California.

* * *

W. G. Kessling, of the Medart Company, St. Louis, Mo., was in Tulsa last week. Mr. Kessling has represented his company for several years at the International Petroleum Exposition.

* * *

R. C. Stoner, who, since 1925 has been assistant general manager of the producing department of the Standard Oil Company of California, has been appointed general manager, succeeding J. M. Atwell, who resigned September 1.

* * *

Wirt Franklin, president of the Wirt Franklin Petroleum Corporation and of the Independent Petroleum Association, was principal speaker at the Wichita Chamber of Commerce, Wichita, Kans., during the week. He spoke on "Conservation in the Petroleum Industry."

* * *

A. E. Wendlandt, of the Humble Oil & Refining Company, was elected president of the newly formed East Texas Geological Association, with headquarters at Tyler, Tex. W. C. Thompson, of the Sun Oil Company, was elected vice president, and Elmer Rice, of the Pure Oil Company, secretary-treasurer.

* * *

F. Taylor Gurney, S. B., Chicago, head of the Department of Chemistry and Physics at the American College at Teheran, Persia, was a visitor to Tulsa last week. Mr. Gurney, who was formerly with Cosden & Co., left Tulsa in 1922 to join the faculty of the Persian college and is now on a two years' leave of absence taking a post-graduate course in chemistry at the University of Chicago.

* * *

Geologists and scouts of 13 oil companies in the Greasewood Field have formed the Scout Association of Eastern Colorado with C. H. Rankin, of the Continental Oil Company, scout master in charge of the organization. An executive committee was chosen composed of Mr. Rankin, R. C. Coffin, of the Midwest Refining Company, H. N. Hickey, of the California Company, Clayton Phebus of the Texas Production Company, and F. I. Funk, of the Ohio Oil Company.

Emil Ott, formerly of San Angelo, Tex., is now in Bern, Switzerland.

* * *

D. B. Williams, formerly chief scout for the Caribbean Petroleum Company, with headquarters in Maracaibo, has returned to his home in Cardiff, Wales.

* * *

R. D. Whitehead, chief geologist of the Atlantic Oil Producing Company, Dallas, and chairman of the Dallas Petroleum Geologists, addressed the West Texas Geological Society at San Angelo, discussing the East Texas oil fields, particularly in reference to the gas-oil ratios of that district.

Men of the Industry

Robert S. Ellison

Robert S. Ellison, president of the Stanolind Pipe Line Company and the Stanolind Crude Oil Purchasing Company, is a native of Indiana and a graduate of Indiana University.

As a young man Mr. Ellison planned a legal career and after finishing a law course he practiced law in Colorado Springs, Colo. In association with Karl C. Schuyler he was counsel for important railroad and mining interests. In 1916 Mr. Ellison entered the law department of the Midwest Refining Company and he served as general counsel. In 1919 he was made vice president of the company, in charge of field division and producing activities, with headquarters in Casper, Wyo. The great development of the Salt Creek Field took place largely under his direction. He resigned from Midwest in 1930 to join Stanolind.

During his residence in Casper Mr. Ellison was a leader in civic affairs. He was active in Boy Scout work and for several years was the Wyoming regional director on the national board. He became a student of western history and was the first chairman of the Historical Landmark Commission of Wyoming created by the legislature in 1927. He was a regional director of the Oregon Trail Memorial Association and the Covered Wagon centennial celebration held in 1930 in Independence Rock was in great measure the result of his efforts.

Mr. Ellison served as president of the Casper Chamber of Commerce and as president of the Casper Literary Club. He was a charter member of the Natrona County Historical Society. He is a member of the Sigma Nu college fraternity. Since his resignation from the vice presidency of the Midwest Refining Co. Mr. Ellison has resided in Tulsa.

R. D. Gwynne, of the Maloney Sales Corporation, has gone to Dallas and points in the Texas oil fields.

* * *

C. M. Crebbs, general agent for the Venezuela Gulf Oil Company, Maracaibo, is spending the summer in the United States.

* * *

George Gibson, representing the C. H. Leach Company, New York, called on oil company buyers in Tulsa during the week.

* * *

Floyd Hodson and Helen K. Hodson, of the Standard Oil Company of Venezuela, are spending their vacation in the United States.

* * *

Daniel J. Moran, president of the Continental Oil Company is returning from a business trip to England. He has been absent about a month.

* * *

E. B. Dilley, chief scout for the Atlantic Oil Producing Company, San Angelo, Tex., and Mrs. Dilley, have been spending their vacation in Mineral Wells and Dallas.

* * *

F. H. Etheridge, land man of the Rio Grande Oil Company, has moved his family from Los Angeles, Calif., to Laredo, Tex., where the company will do some operating.

* * *

George Massen, representative of the Dearborn Chemical Company in the Southwest, with headquarters at Kansas City, was in Tulsa last week calling on oil companies.

* * *

Charles S. Jones, vice president of the Rio Grande Oil Company, who has been in New York for the past week, is expected to return to the Los Angeles offices of the company shortly.

* * *

Ralph Rowden, in the scouting and land department of The Texas Company, has been transferred from Fort Stockton in the West Texas district to Corpus Christi in the Houston district.

* * *

Wallace Gordon, chief geologist of the Mid-Continent division of the Superior Oil Company of California, with headquarters at Dallas, Tex., has been looking over the eastern Colorado situation.

* * *

E. L. Jones, Jr., district geologist for the Shell Petroleum Corporation, San Angelo, Tex., has resigned from that company and is moving to Los Angeles with his family. Russell Conkling remains in the Shell office in San Angelo.

* * *

R. B. Brewer, of the Barnsdall Oil Company's San Antonio office, has been elected secretary of the Southwest Texas Oil Scouts Association. He succeeds R. L. Seashore who recently resigned.

* * *

Ernest Hartford, assistant secretary for the American Society of Mechanical Engineers, New York City, is making an extensive tour of Mid-Continent cities in the interest of the society and was in Tulsa last week.

* * *

Dorsey Hager, well known geologist and petroleum engineer, is in charge of the operations of Moody-Seagraves Company of New York, prospecting and acquiring land for the purpose of developing gas production in western Oregon.

* * *

Mr. and Mrs. A. E. Haley and son have returned from Miri, Sarawak, and will spend some time on furlough in Petrolia and Sarnia, Ont. They will also make a motor trip through the southern states before leaving early next year for Holland, where Mr. Haley will take an executive position in the head offices of the Royal Dutch-Shell Oil Company at The Hague. Mr. Haley has been with the Royal Dutch-Shell as driller and later as supervisor since 1909. On their return trip Mr. and Mrs. Haley visited Holland, Germany and other European countries.

*

WROUGHT-IRON ENDS THE

GUESSING!

Pipe line companies have experimented with many methods for combating the corrosion of pipe lines made of less durable materials than wrought iron. The sole purpose is protecting property against shut-down and loss in revenue.

There are usually many places along a line where obviously "hot spots" exist. Salt water drainage, river crossings, alkali areas, cinder fills, poorly drained soil, gypsum areas, and gumbo soils take a lighter toll when Byers Genuine Wrought Iron Line Pipe is used.

"The economic design of a protective coating at present resolves itself into more or less of an intelligent guess." *There is no "guessing" where wrought iron is used!*

Wrought iron's unequaled service records in the "hot spots" of line pipe, tubing, and refinery installations are accessible to any engineer who will look up the older wrought iron installations in his own section of the country.

Factual data has been compiled by our staff of engineers and is available for the asking. It is uncolored by opinion or theory.

For sixty-seven years Byers has been establishing "new highs" in wrought iron quality. The physical and chemical control which our modern manufacturing methods permit makes Byers Genuine Wrought Iron the best wrought iron ever produced. A. M. Byers Company, Pittsburgh, Pa. Established 1864.

BYERS • GENUINE • WROUGHT-IRON PIPE

AN INVESTMENT—NOT AN OUTLAY

Natural Gas Industry Developments

Natural Gas Supply For New York City Likely to Be Delayed

Although facilities are ready for the transmission of natural gas from Texas to Chicago, a distance of 900 miles, it is doubted, says an article in the New York Times, that New York City, which is not more than one-third of that distance from similar supplies, will have natural gas for some years, although there are four large pipe lines that lack extensions of only a few miles to link the metropolitan area with the Appalachian gas fields, 200 to 300 miles away. One reason is that these four lines will be required to serve parts of eastern Pennsylvania, New Jersey, Maryland and near-by areas, and are not large enough to bring gas to New York City, too. Another is the absence of any basis for a contract between the Consolidated Gas Co., which distributes gas in this area, and the Columbia Gas & Electric Co., which presumably is to be the seller of natural gas on the east side of the Hudson River.

Conversations at various times have been held between representatives of the two companies, but no negotiations have resulted. The position of the Consolidated Gas Co. is that it is receptive to any proposals in the interest of itself and its consumers; that the seller must be able to provide a substantial supply of natural gas, and that the price at which the gas is to be delivered on the east bank of the Hudson River must be lower than the cost of producing the same amount of gas artificially.

No Immediate Need

The Consolidated Gas Co. has no im-

(Continued on Page 137)

TEXAS COMMISSION ORDERS RATE SURVEY

AUSTIN, Tex., Sept. 21.—The Texas Railroad Commission has decided to award a contract to an engineering company to conduct a statewide survey of gas rates, having for its purpose information on which to determine whether they are too high.

Laten Stanberry, chief of the gas utilities division, was directed to submit the nature of work to engineering firms and ask for bids, after the reception of which the commission will make the award.

About 200 towns have applied to the commission for such a research, and two of the larger gas companies have offered co-operation. The engineering crew will have as its principal duty the determination of valuation of plants.

When the survey contract is let, Stanberry said, he expects the Lone Star Gas Corp. will probably be the first to undergo plant inspections, to be completed in about 90 days. The commission is hopeful of establishing more uniform rates over the State when the investigation has been completed.

COMMISSION TO FIX RATES

AUSTIN, Tex., Sept. 21.—A bill has been introduced in the legislature providing that the Railroad Commission shall have power and authority over corporations doing business in this State furnishing electric power or natural gas to the public and providing that such commission shall have the right to fix rates for services and make regulations with reference thereto; corporations becoming subject to the general provisions of the Railroad Commission act and to the penalties provided for violation of the orders of the commission.

GAS PRODUCTION IN NEW YORK FIELD GREATEST IN HISTORY IN PAST YEAR

By E. B. Swanson
Chief Economist, Petroleum Economics Division, U. S. Bureau of Mines.*

The Empire State occupies a unique position with respect to natural gas. Anyone interested in either the earliest or the most recent achievements of this industry would have his attention drawn to that State. New York is credited with the first commercial production and use of natural gas; the first transportation of natural gas by pipe line, and the first mixture of natural and manufactured gas. These events range back over a century and a decade. Turning to the present, New York leads in the number of consumers, counting both manufactured and natural gas users. With the developments centering in Schuyler County, it joins with Pennsylvania in presenting the most recent achievements of economic importance. More than 100 years ago natural gas at Fredonia was a subject of conversation and curiosity. Today, natural gas in the Tyrone Field is equally a matter of interest.

Although the exact date is uncertain, it was probably in 1821 that drilling for natural gas was begun in Fredonia. Undiscouraged by two failures, William A. Hart, a gunsmith of the village, sank a third well and, at a depth some think was 70 feet, encountered what was regarded as a good supply of gas and immediately arranged for its utilization. He purchased light lead pipe, three-quarters of an inch in diameter, and connected the gas with the village hotel and also to several stores on the opposite side of the street. The production, transportation and utilization of natural gas in the United States was thus begun.

Fredonia and the lake shore belt bordering Lake Erie were socially and strategically more important during the first half of the nineteenth century than since the advent of modern transportation. Fredonia was on the stage line between Buffalo and the West, and the old French road from the Ohio Valley to Canada was within a short distance. Travelers along either road were sure to have had their attention called to what must have been to them an astounding fact.

Gas Burner on City Seal

General Lafayette, on his second visit to the United States, entered the village of Fredonia early on the morning of June 4, 1825. He was nearing the end of his 5,000-mile journey down the Atlantic Seaboard and up through the states bordering the Mississippi and Ohio Rivers en route to Boston where on June 17 he was to lay the cornerstone of the Bunker Hill monument. Arrangements had been made for a United States sloop of war to await him at Dunkirk and convey the party by water to Buffalo. Delays occurred en route and it was well past midnight when the party reached Fredonia. A great throng awaited his arrival and the military company of the village, which was to march as a guard of honor over the few miles separating Fredonia and Dunkirk, added a martial note to the welcome. In these early hours of the morning, Lafayette was greeted, refreshments were served, and the whole scene was illuminated by natural gas.

In 1829, the village of Fredonia adopted a town seal and selected a five-jet gas burner as its principal adornment. With the passing of years, the supply of gas dwindled and, about 1860, the local company was obliged to introduce manufactured coal gas into its pipe to maintain an adequate supply. They built retorts and found that by the introduction of a quantity of natural gas, the service of the coal gas was improved greatly. This, undoubtedly, or as far as the record goes, was the first instance of the enrichment of manufactured gas with natural gas, or the distribution of a mixed natural and manufactured gas.

Meanwhile, another interesting event had taken place a few miles westward. A government lighthouse, at Portland, or Barcelona as it was called, was built about 1828 and natural gas was led through wooden pipes from nearby seepages to the lighthouse and burned in the lamp. This is the first and possibly the only instance in which natural gas has been used to light a beacon of this sort.

Geological Structure

Western New York embraces the northern portion of the Appalachian geosyncline or spoon-shaped trough which extends south through the Appalachian petroliferous province. The geologic history of this region, once occupied by a sea, records in general the uplift of the land mass to the east, the gradual retract of the sea, and the successive deposition of layers of sediment washed down from the adjacent highlands. Those who are interested in the geology of the New York gas fields should read two articles prepared by Paul D. Torrey, a consulting engineer of Bradford, Pa., who has devoted specialized attention to the geology of the new producing areas.

For purposes, however, of visualizing hurriedly the general structure, one should remember that the region was covered by a relatively shallow sea, on the bed of which were deposited successively the various layers of material now comprising the different strata. The beds dip in a southerly direction away from the Adirondack and Canadian highlands. Because of this gentle dip to the south, formations which outcrop in the northern part of the State are buried

(Continued on Page 128)

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NATURAL GAS PIPE LINE MAPS OF ESPECIAL VALUE

Of especial value to the natural gas industry and to all companies and individuals interested in the transportation of natural gas is the map of The Oil and Gas Journal showing all natural gas trunk pipe lines in the United States. This map is copyrighted and permission to reproduce it either in whole or part has been prohibited, consequently it is possible to procure the map only from The Oil and Gas Journal.

A limited number of copies of this map is still available. It is printed on especially heavy bond paper. On the reverse side from the natural gas pipe lines there is shown all crude oil and gasoline trunk pipe lines in the United States. The price of the map is $1 each, postpaid. Owing to the large demand for the map, those interested in procuring copies are urged to send in their orders as quickly as possible.

GAS WASHING PLANT

McCUTCHENVILLE, Ohio, Sept. 19. The Ohio Fuel Gas Co. is constructing a washing plant on the Powell farm, 1 mile south of McCutchenville, in Wyandot County, to clear the gas of its sulphur content, which will be similar to the plant built a few years ago at Forest, in Hardin County, which is being dismantled.

LONE STAR GAS CORP. APPEALS MURRAY ORDER

Attorneys for the Lone Star Gas interests sought in Federal Court today to bring to an abrupt halt Gov. W. H. Murray's court battle for reduced gas rates for 23 Oklahoma cities.

District Judge Robert L. Williams, at Muskogee, was handed a petition for an order to restrain Governor Murray's aides from "confiscating and destroying" Lone Star holdings in Oklahoma.

Those specifically named were Leon S. Hirsh, Oklahoma City attorney for Governor Murray; Earl Pruet, Jefferson County attorney, and John W. Hoffman, Oklahoma City, newly appointed temporary receiver for gas company properties.

The petition, an outgrowth of suits for receivership and approximately $365,000 damages and penalties filed by Hirsh at the instance of Governor Murray, alleged the three were "threatening to send armed men" and seize company property, and termed actions of the three a "conspiracy" to "coerce" the Lone Star and its subsidiaries into granting applications of customer cities for cheaper gas rates.

The injunction action followed by 24 hours the refusal in Jefferson County district Court, at Waurika, of Judge Eugene Rice to transfer the Murray receivership suits to Federal Court. Hoffman was named temporary receiver by Judge Rice recently and September 19 was set for a hearing on making the appointment permanent.

Subsidiaries named in the suits include the Guthrie Gas Service; Community Natural Gas Co. and Meridian Gas Co.

Governor Murray announced he would submit soon to the people for vote an initiative petition to require foreign corporations to domesticate if they wish to operate in Oklahoma. Interlocking directorates would be forbidden to public service corporations under Governor Murray's plan.

DENNING WILL DISCUSS FORT WORTH GAS RATES

FORT WORTH, Tex., Sept. 21.—L. B. Denning, president of the Lone Star Gas Corp., has informed the president of the Riverside Civic League of Fort Worth that he would meet with a committee of that organization which will attempt to secure a voluntary reduction in domestic gas rates for Fort Worth.

September 25 has been set as the date for the meeting in Fort Worth of officials of 500 cities interested in obtaining lower gas rates. This meeting is being arranged by a committee from the Texas League of Municipalities. Members of the Texas Railroad Commission are to attend this committee, as will also men from the Attorney General's department.

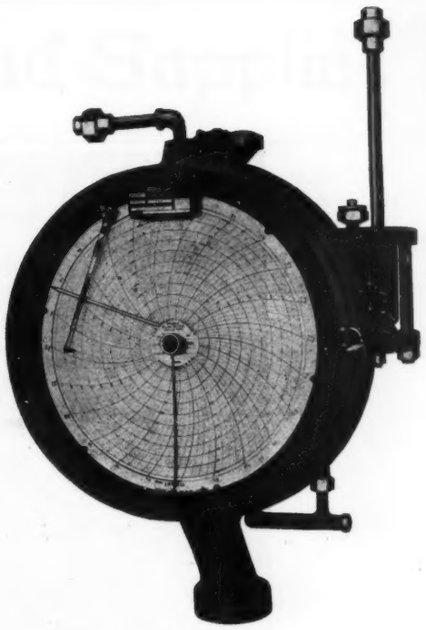
PAMPA WANTS CUT

PAMPA, Tex., Sept. 21.—A city ordinance ordering gas rates reduced 8 cents per 1,000 feet was passed by the city commission here. The commission rejected a 4 cents per 1,000 feet reduction offered by the Central States Power & Light Co. The new rate is 30 cents per 1,000 feet for the first 3,000 feet.

APPALACHIAN GAS DIVIDEND

Directors of Appalachian Gas Corp. have declared the regular quarterly dividend of $1.75 per share on its $7 convertible preferred stock, series "A", payable October 1 to shareholders of record September 19.

5 Cuts in Meter Maintenance Costs



THE average flow meter is in service 15 to 20 years. For this long service, only the best equipment available should be installed—equipment that will stand the gaff of the oil and gas fields and will not run up bills for excessive maintenance.

Records show that Foxboro Flow Meters have the lowest maintenance cost of any meter. And their accuracy, dependability and long life are recognized wherever flow meters are used. Five significant facts substantiate our claim of low maintenance costs.

1. *Inspection Costs Reduced.* The straight line motion of the patented segmental lever in Foxboro Meters means long periods of operation without attention. The large mercury displacement prevents dirt and sediment from disturbing the calibration. Hence fewer inspections and less time spent on inspections.

2. *Mercury Losses Eliminated.* Each meter is tested on an over-range of more than 100 times its maximum differential. Check floats are submerged in mercury and the ground seats are mercury-protected from line scale, freezing, and corrosion. The floats seat positively and not one drop of mercury is lost.

3. *Leaks and Friction Abolished.* The Pressure-Tite Bearing neither leaks nor binds, and needs no adjustment in the field. It is practically frictionless: no packing is used and the thrust of the shaft is taken on a jewel bearing.

4. *Cleaning Costs Cut.* The meter is so easy to disassemble, clean, and reassemble that it is not necessary to remove the piping or disturb the setting. The chambers have smooth, straight walls. And the 20-inch Meter is just as easy to clean as the 50- and 100-inch Meters. No re-calibration is necessary.

5. *Trips to the Shop Reduced.* The uniform straight line motion gives the meter inbuilt calibration. It is never necessary to send a Foxboro Meter to the shop for calibration. The patented Segmental Lever has finally solved *that* problem. The operator has only to set the pen at zero and the meter is accurate throughout the scale.

These are all very simple achievements, but they have reduced the cost of meter maintenance from one-third to one-half in hundreds of applications. And besides, the powerful mechanism of the Foxboro Meter operates with amazing accuracy.

This combination of inherent accuracy, dependableness, and low maintenance cost is your guarantee of utmost satisfaction. Write for the whole story of Foxboro Meters. A Post Card will bring it to you.

The Time to Lick Maintenance Cost Is When You Purchase

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THE COMPASS OF INDUSTRY

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Agents for Robinson Patented Orifice Flange Fittings

Instruments for Controlling, Recording and Indicating Temperature, Flow, Humidity and Pressure

Gaso No. 1508 Timken-equipped pump driven by Allis-Chalmers Timken-equipped electric motor.

The GASO No. 1508 power pump is equipped with Timken Roller Bearings on the main shaft and pinion shaft. Timkens hold these vital shafts in alignment, protect them against radial-thrust loads, keep the gears meshing accurately and smoothly, reduce vibration, save power and lubricant. The oil industry relies upon Timken tapered construction and Timken-made steel for efficiency, dependability and economy in all types of oil field equipment. Specify Timkens.

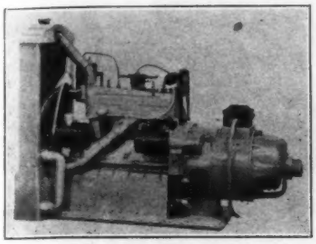
THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

Oil Industry Equipment and Supplies

ELECTRIC PLANT MEETS USES OF THE OIL FIELD

The Garrott electric plant, made by the Garrott Brass & Machine Co., Houston, Tex., is a self-contained gas engine electric generator set for oil field and



general industrial service. The unit consists of a standard Ford Model "A" four-cylinder L-head type engine mounted on a special crankcase, which is cast integrally with the base. The crankcase holds 6 gallons of lubricating oil, which assures an abundance of clean lubricant for the interior parts of the engine, making frequent changing of oil unnecessary.

A partition in the forward end of the crankcase provides a water chamber of liberal capacity on which the radiator is mounted. The cooling water circulates through this chamber, and by means of a heat exchanger keeps the crankcase oil at an even temperature. This feature, together with the liberal quantity of oil used, reduces the danger of overheating, resulting in a long life to the wearing parts of the engine.

The 3½ KW direct-current model consists of a four-pole compound wound generator bolted directly to the flywheel housing through the medium of an adapter casting. A ventilating fan casting is bolted directly to the flywheel, the center hub of which supports the rear end of generator shaft. The shaft extends through and is centered in the engine flywheel. The commutator end of the shaft is carried on a liberal sized ball bearing.

An extension of the base provides additional support for the generator, which may be removed easily from the engine should occasion require.

On the larger sized units the engine crankcase is mounted on a subbase. This base extends to provide a foundation for the generator, which is connected to the engine through the means of a special flexible coupling. A casing enclosing the coupling is placed between the generator and engine, producing a compact and pleasing design.

CATERPILLAR 50 FILLS GAP IN MACHINE SIZES

The "Caterpillar" Fifty tractor is announced by the Caterpillar Tractor Co., Peoria, Ill. Between the Thirty and the Sixty in size, it fills a gap in the power range. It develops 50 maximum drawbar horsepower. The Sixty develops 60 maximum drawbar housepower, and the Thirty develops 30. The shipping weight of the Fifty is approximately 16,500 pounds. Deliveries will begin about November 1.

In general appearance, the Fifty follows in lines of design the smallest three sizes in the "Caterpillar" tractor line—hood enclosure for the engine, fuel tank just behind the engine, a wide, cushioned seat for the driver, all controls conveniently placed and within easy reach.

A booklet of 32 pages on "Dryers" is being sent out by the C. O. Bartlett & Snow Co., 6200 Harvard Avenue, Cleveland, Ohio, maker of drying equipment for all kinds of material.

NOTES ABOUT TRADE LITERATURE

Welders in many parts of the world tell how they solved welding problems in the Operator's Stabilizer, published by the Lincoln Electric Co., Cleveland, Ohio. The August-September number of this helpful publication has been mailed.

The Garrott Brass & Machine Co., Houston, Tex., has issued a bulletin descriptive of the Garrott electric plant, powered by the Ford Model A engine, for oil-field uses.

The Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., is sending out a bulletin containing a description of its bullet-type vertical hollow-shaft motors for deep-well pumping service.

Liquilox, a new liquid protective coating, is described in an eight-page bulletin issued by the Liquilox Co., 576 Subway Terminal Building, Los Angeles, Calif.

Bulletin No. 314, being mailed by the Byron Jackson Co., Berkeley, Calif., devotes its 40 pages to description and illustration of centrifugal refinery pumps, along with engineering data.

Electric equipment for oil refineries is described in a 48-page booklet recently published by the General Electric Co., which also is sending out several loose-leaf bulletins for filing, including a bulletin on blast gates for low-pressure air and gas systems.

Two broadsides are being mailed by the Caterpillar Tractor Co., Peoria, Ill. The Caterpillar 20 leaning-wheel grader is the subject of one. The other tells about the Caterpillar 60 elevating grader with engine belt drive.

"Return Bend Economizers" is the subject of a new bulletin issued by the Babcock & Wilcox Co., New York.

Extraction and purification of oils and fats by the noninflammable trichlorethylene is discussed in detail in the new booklet, "Trichlorethylene, Its Properties and Uses," recently issued by the Roessler & Hasslacher Chemical Co., Inc., Niagara Falls, N. Y.

HOWELL MOTOR HAS FINE MICROMETER ADJUSTMENT

The new adjustable shaft motor manufactured by the Howell Electric Motors Co., Howell, Mich., offers the pump manufacturer a motor having fine micrometer adjustment.

Adjustment of the shaft is accomplished by cast steel housing, accurately machined with 16 threads per inch. All adjustments can be made while the motor is in operation, carrying its full load at full speed. By placing a wrench on the micrometer adjustment, a "gallon per minute meter" on the pump and an amperemeter on the motor, it can be adjusted to maximum capacity of the pump at maximum efficiency of the motor per horsepower in a few minutes, with the motor in operation.

The lubrication chamber of the adjustable shaft motor is totally enclosed at all times while adjustments are being made. This prevents injurious materials from entering the housing or the ball bearings. The assembly is entirely separate from the protecting hood.

PULSATION SHOCK ABSORBER

The all welded pulsation shock absorber made by the Meriam Co., 1956 West One Hundred Twelfth Street, Cleveland, Ohio, is designed to eliminate the unsteady reading so often met with where pressure or vacuum gauges are connected to pipe lines carrying gases or liquids having a pulsating flow. The pulsation is particularly objectionable where the liquid sets up "hammer action," and it is seldom practical to install large air receivers on each pipe line. The trouble may be cured, the Meriam Co. says, by placing a pulsation absorber in the small line leading to the gauge. The pulsating pressure from the line is forced to reach the gauge through fine tubing within the compressor air chamber of the gauge. This "air receiver" action, combined with the friction of the fluid in the tubing, absorbs the fluctuations from the gauge line pressure, and gives the true line pressure. The shock absorber is only 7 inches high, there are no moving parts, and all joints are welded to prevent leakage. These absorbers are designed for line pressures up to 10,000 pounds.

NEW WELDING FITTINGS ANNOUNCED BY MIDWEST

A new line of welding fittings put on the market by the Midwest Piping & Supply Co., Inc., 1450 South Second Street, St. Louis, Mo., includes welding ells, welding head, welding sleeve and welding saddle.

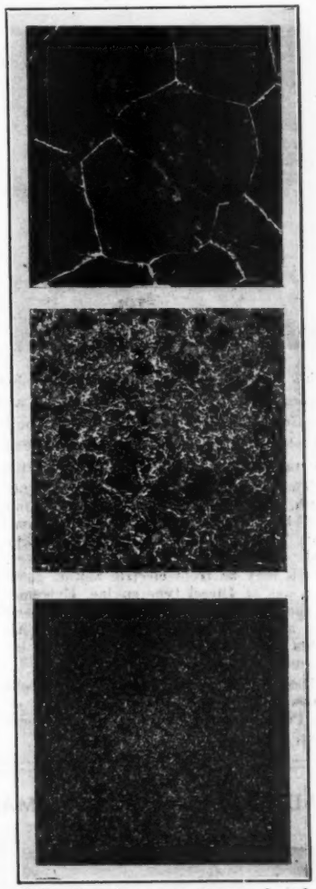
Midwest welding ells have tangents that are an important feature because they reduce the time and cost of installation. They make it possible to line up the pipe and fitting more quickly and accurately. The welds are more accessible and are removed from the point of maximum bending stress. One-quarter inch of tangent is provided for each inch of pipe diameter; thus an 8-inch ell has tangents 2 inches long. Each ell is made from one piece of plate by a special process developed and patented by Midwest. There is one welded longitudinal seam along the inner circumference. The final working of the metal is in compression at a forging heat, thus normalizing and refining the metal in the plate and the weld. It is not extruded or stretched.

The Midwest welding head has many advantages. The ellipsoidal form reduces the unit stress in the metal to a minimum. What is perhaps even more important, the circumferential weld to the pipe is entirely in tension as a result of the long tangent of the welding head. This weld is not subjected to shear and bending. The dimensional accuracy, the long tangent and the end beveled 45 degrees for butt welding, make the application of the Midwest welding head much easier.

The Midwest welding sleeve is used to reinforce a butt line weld between two pieces of pipe. It relieves the butt weld of any bending stress and much of the tensile stress to which it otherwise would be subjected. The purpose of the butt weld then becomes principally that of keeping the joint tight. The transverse recess in the sleeve permits the application of the sleeve over the conventional line weld. Each half of the sleeve is slightly less than a semicircle to assure a sung fit against the pipe even when its outside diameter varies the maximum permissible extent under standard diameter.

SUCKER-ROD SUBJECTED TO 3 HEAT TREATMENTS

The Oil Well Supply Co., Oil Co., Pa., announces a sucker rod manufactured by a new and specialized process to gain the maximum in strength, toughness and ductility. Each rod is subjected to a



Under the microscope. Top, as forged; center, with "normalizing" treatment only; bottom, after Oilwell's "triple treatment."

triple-heat treatment. A rod heat-treated over its entire length results.

The first step is normalizing, after the forging of the ends of the rods. This treatment relieves internal strains set up in the forging operation and refines the grain structure.

The second step is a grain-refining operation by quenching. This consists of heating the full length of the rod to a point somewhat above its critical point and then while this temperature exists, quickly plunging the rod into water. This method practiced under rigid pyrometer control of furnace temperature produces a very fine grain which adds greatly to the strength of the steel. This quenching treatment, however, causes the steel to be brittle so that a further heat treatment is needed to achieve ductility.

The third step consists of drawing the temper exactly as the best tool steels are tempered and drawn. This provides ductility and is accomplished by again heating the full length of rod but this time to a lesser temperature than in the preceding quenching operation. The drawing furnace is controlled carefully to maintain the rods at proper heat over a period of several hours after which the rods are allowed to cool in air. This completes the heat-treating process after which the threading is done.

Oil Industry Equipment and Supplies

UNIT IS ANNOUNCED FOR PUMPING AND SERVICING

A new pumping unit offered by the Parkersburg Rig & Reel Co., of Parkersburg, W. Va., is said to embody adaptability, flexibility and strength with low cost of installation and maintenance.

This new unit can be used either for straight pumping or for pumping and servicing. Either bull-rope-driven bullwheels or chain-driven tubing hoist can be used when servicing with this outfit.

The chain-driven sprocket has "cut" teeth, to assure smoothness of operation and high efficiency in power transmission. The V belt drive adds to flexibility and efficiency in transmitting power, which may be from electric motor, gasoline, gas or Diesel type engine. Extremely compact, this unit dispenses with need for a large or expensive housing. All parts are easily accessible, making for inexpensive maintenance.

Details and specifications may be obtained by writing the main offices of the Parkersburg Rig & Reel Co., Parkersburg, W. Va.

METER TELLS HOW LONG MACHINE WAS OPERATING

Time meters, manufactured by the General Electric Co., tell in hours or minutes how long a machine has been in operation. Connected in a motor circuit, the motor reads "motor running hours." Motor hours usually equal machine hours. On piece-rate-operated machines this is invariably true when a time meter is used. Because, in order to obtain credit for idle time (due to breakdowns, etc.), the operator will shut down the motor to stop the time meter. Thus, the time meter records the active machine time.

Time meters are not limited to motor-driven machines. They measure the actual operating time of any electric equipment depending on alternating current. A little synchronous motor, identical with that in the General Electric clock, is in each time meter. This motor is geared to a registering counter. The counter reads elapsed time. The time meter is built for convenient portable use, for permanent conduit mounting, and for switchboards.

BUYS METALWELD

The Worthington Pump & Machinery Corp. has acquired the manufacturing and and marketing facilities of Metalweld, Inc., Philadelphia, Pa., builders of a complete line of portable compressor units. Last year the Worthington took over the manufacture and sale of Gilman rock drills and accessories. This together with the added line of portable and semi-portable compressors and other tools, will enable the company to supply all air equipment requirements of contractors, railroads, utilities and industrial users. The portable compressors will be manufactured in the Harrison, N. J., works of the Worthington Pump & Machinery Corp., and the engineering, manufacturing and sales personnel of the Metalweld organization also will be located there.

NO MULTIPLYING DEVICE IN FOXBORO CONTROLLER

The Foxboro Co., Foxboro, Mass., offers a new instrument for controlling temperature or pressure in relation to time. This instrument, the non-recording time controller, maintains a predetermined cycle of operation in any process involving temperature or pressure.

The instrument is similar in appearance and construction to the standard Foxboro recorder-controller. The major difference is that the non-recorder has a printed aluminum cam instead of a paper chart and a specially designed cam follower in place of the pen arm. This unique construction has made it possible to obtain a 1-to-1 ratio between the cam reading and control point setting, thus maintaining the control point without the use of multiplying devices of any kind.

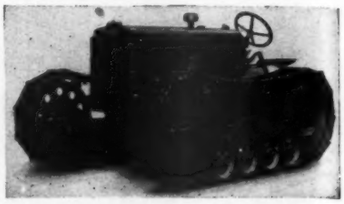
The cam is a printed aluminum disc the size of a standard Foxboro 10-inch chart. The markings are printed by a special process from plates similar to those used in the printing of Humitex charts. This feature makes the use of the instrument particularly flexible since new cams to meet changed conditions can easily be cut by the user with a pair of shears and a file.

The controller is designed for use on industrial processes in which the relation of time to temperature or presure is important. One of the most interesting and successful applications of this instrument is the maintenance of gas pressures in lines where the load requirements are predetermined. In this application the controller is used in conjunction with a diaphgram motor lever and controlled valve, to build up or let down the pressure in the line according to previously determined load conditions.

C. B. Coldwell, formerly located in Chicago, has been transferred to the Fort Worth office of the International-Stacey Corp. and placed in charge of sales.

CASE TRACTOR EQUIPPED WITH TRACKSON CRAWLER

A heavy-duty Trackson crawler, known as Model GC, is now available for the Case industrial tractor. Equipped with this means of positive traction, the Case is adapted to a wide range of uses. In



addition, the combination is ideally suited not only to drawbar work but to equipment operation as well. Its design provides for the actual inbuilding of either front, side, or rearend equipment, adapting it to as many different uses as the operator may have attachments. Shovels, loaders, bulldozers, hoists, cranes, etc., are interchangeable.

Correct operation of any of these attachments is assured by the balance and structural strength of the combination. The motor unit does not overbalance the front end, but is centered fore and aft between the crawlers. Extra-heavy crawler frames, truck wheels and bearings provide ample strength for the great superimposed loads of equipment operation. Wide clearance between the crawlers and motor permits quick, secure attachment of the equipment and easy adjustment or lubrication of the crawler mechanism. The crawlers are of all-steel construction; the track shoes of heavy electric alloy steel, cast in one piece, and specially corrugated to grip securely without damaging road surfaces. Either the Trackson Co., Milwaukee, Wis., or the J. I. Case Co., Racine, Wis., will furnish further details.

RAINE GENERAL SALES MANAGER OF BJ'S OIL TOOL DIVISION AND VINCENT MID-CONTINENT SALES MANAGER

A. E. Raine

C. F. Vincent

R. M. Cook

J. S. Mellon

A. E. Raine, formerly sales manager in the Mid-Continent territory for Byron Jackson Co., has been appointed general sales manager of the oil tools division, with his office in Los Angeles, Calif. C. F. (Bud) Vincent succeeds Mr. Raine as sales manager in the Mid-Continent, with headquarters in the new sales office and warehouse of the company at 2505 Boaz Street, Fort Worth, Tex. R. M. (Bob) Cook continues as sales manager for California, and J. S. (Jack) Mellon will continue as manager of foreign sales. Both should be addressed at the general offices of Byron Jackson Co., Box 1307, Arcade Station, Los Angeles, Calif.

Built to Stand The Gaff

TOWERING into the skies, fearlessly facing the forces of storms and winds, Parkersburg Derricks stand unflinching.

Beginning with the Steel—of Superior Quality, better fabrication of each member, the faultless fitting of parts, the strict conformance to A. P. I. Standards—these give additional strength and safety to Parkersburg Derricks and confidence to the men working under them.

The strength of any derrick depends largely upon the security of its joints. Parkersburg patented slot-bolt construction, which reduces the possibility of loose joints fully 50 per cent, is a vital feature which speeds erection and assures ultimate economy in Parkersburg Derricks.

Perfect butt-to-butt contact of each assembled derrick leg member produces the effect of a single, continuous column of steel, safely distributing the load straight down the legs, eliminating shear strain on the bolts.

There's a Parkersburg Quality Derrick in a size and type for every well. Let our nearest Representative tell you the full story of how Parkersburg Derricks are standing the gaff in oil fields around the world. Write for detailed data and descriptions.

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We Subscribe to A.P.I. Standards.

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BRANCHES IN ACTIVE FIELDS

CABLE ADDRESS PARICRELL

242-A

Scouting With the Journal's Cameras in Active Oil Fields

Front row, left to right: Edward Henderson, machinist helper; James T. Rouin tree, oiler; L. C. Young, machinist helper; and D. H. Steinson, engineer. Back row, left to right: C. F. McKneely, chief engineer; T. G. Nash, welder; J. B. Lewis, telegraph operator; E. P. McClandhan, machinist; Malcolm Moore, welder helper; Ajax Pipe Line Company, Pryor, Okla. 2—Ted Cashion, Sun Pipe Line Company, and F. O. Robers, warehousemen, Sun Oil Company, Longview, Tex. 3—C. W. Alcorn, engineer; E. L. Davenport, foreman; and J. L. Dellinger, Shell Petroleum Corporation Kilgore, Tex. 4—Left to right: S. Spradling and Ira Pape, Stanolind Oil & Gas Company, Willow Springs, Tex.; Ira Rhynes, driller. East Texas; and Beck Becktel, superintendent, Stanolind Oil & Gas Co., West Texas. 5—Bill Clark, umpire, Longview area, East Texas; and Ben Nash, scout, Houston Oil Company, Shreveport, La.

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Ample Strength

assured by *correct design* and careful testing

Users of Armco Spiral Welded Pipe are assured ample strength, not only because the tough helical weld provides evenly distributed strength throughout each section, but also because of exacting pressure testing. Each section is hydrostatically tested to twice the required pressure before it is coated and released for shipment to buyers.

Strength is built in—by the use of true-gage coiled plate, welded helically into dense, firm seams. And these welds are raised slightly on the outside for greater rigidity. Yet the interior of Armco Spiral Welded Pipe is uniformly smooth and round.

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DISTRICT OFFICES: Chicago · Cincinnati · Cleveland · Detroit
New York · Philadelphia · Pittsburgh · St. Louis · San Francisco

Quick Facts: Smooth interior · Round and straight · Light and strong
No surplus metal · Sound helical welds · Uniform wall thickness · 40 ft. lengths or more
Diameters 6″ to 24″ · Wall thickness $\frac{7}{64}$″ to ¼″ · Ingot Iron or Steel
Mill-coated, asphalt-dipped, galvanized or leadized

Chicago Pipe Line Is Largest Gas Project

New Era in Engineering Opened as Operation of System Developed Corrections Which Must Be Made to Established Formulas

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, Sept. 21.—The completion of a pipe line system designed to bring 175,000,000 feet of natural gas daily from the Texas Panhandle to Chicago, a distance of 923 miles on the right of way, has been recorded, with the industry scarcely a century removed from the days when leather-lunged bellows furnished compression and rifle barrels, screwed together, made up the pipe line. And it may be said that the successful operation of this new pipe line system built by Continental Construction Co. definitely marks off a new era in engineering and sets up the practical application of corrections to generally accepted formulas, such as those of Weymouth and Barlow, and even of Boyle's law, to the point of being mandatory.

The assignment to Continental Construction Co. was to build a system with the enormous capacity of at least 175,000,000 feet to transport natural gas from Fritch, Tex., to Chicago, and to supply about 50 intermediate points with the fuel. If the prevailing engineering practices were adhered to the cost of such a line would be prohibitive and the operating costs exorbitant. These considerations were successfully dealt with by the construction of the largest high-pressure natural gas line in the world, equipped with 10 compressor stations of which the first is the largest ever built. The pipe is of the 24-inch size throughout except where the topography of the country crossed calls for various adaptations, and, obviously, where smaller pipe is indicated at the compressor stations.

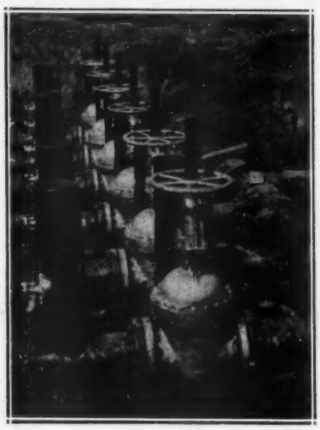
Crossing the Mississippi. One of the six 10-inch lines.

At Fritch, where the largest compressor station takes the gas from headers supplied from the field, the largest piece of auxiliary equipment is a complete natural gasoline plant which has a daily capacity of 72,000 gallons. Additional installations are to be made at the natural gasoline plant for the extraction of propane from the gasoline. The operators of the line are now buying propane which is used in the gas refrigeration system. Two systems for cooling the natural gas are in use on the line, and it is hardly necessary to point out that lowering the temperature of the gas makes it possible to "pack" more gas in the line and thus effect an increase in capacity beyond that acquired by the higher pressures at which the line operates.

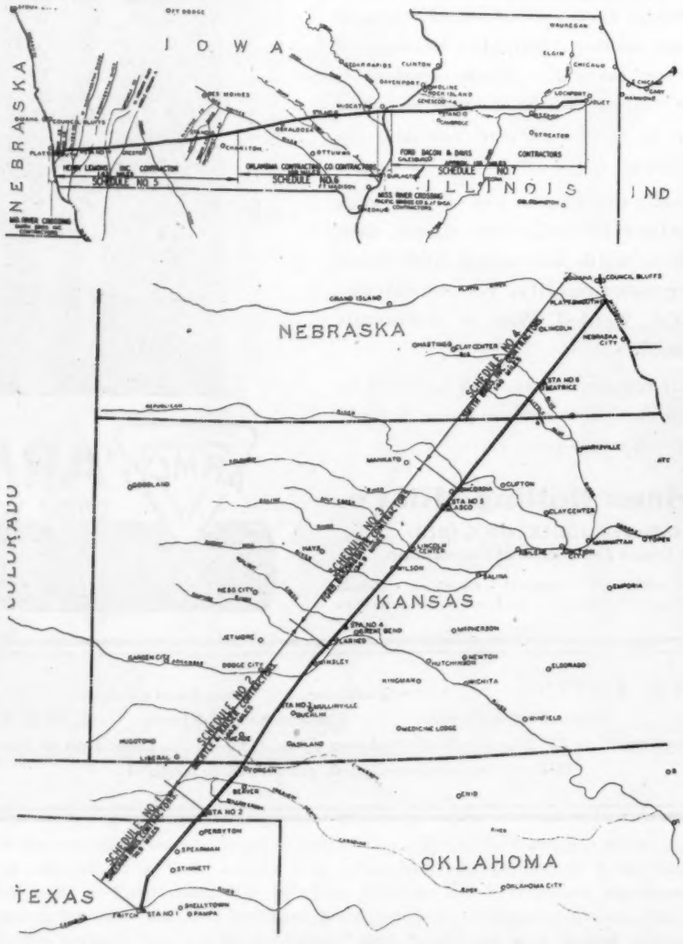
World's Largest Compressor Station

The size of the Fritch compressor station is more than double that of any of the remaining nine stations on the line. The Fritch station is equipped with twelve 1,250-horsepower Worthington compressor units, while at each of the other stations there are five of these 1,250-horsepower units. Similarly, where there are three sets of 100-horsepower turbine water coolers to circulate water to the compressors at the Fritch station, there are two sets at each of the remaining stations. At the Fritch station there are two superintendents, three shifts of two engineers each, four oilers for each shift and two auxiliary engineers for each shift. At the other stations this personnel is halved. The power of the Fritch station is indicated in the fact that if all the other stations were by-passed this station could deliver 20,000,000 cubic feet of gas a day at a pressure of 720 pounds to Chicago.

At each of the wells contributing gas to the system the flow is metered and regulated. The quantity of gas in the pipe line proper may be controlled practically by throttling down the flow of gas from the wells, as well as by regulating the speed of the engine-compressor units or utilizing the by-passing arrangements. The well pressure varies from 300 to 150 pounds and at the intake side of the Fritch station the pressure drops to 75 pounds. That the pressure at the intake side of the first compressor station does not drop below 75 pounds is due to the fact that two small lines bring the gas to the station instead of a single large line. This comparatively low pressure must be stepped up to at least 600 pounds. To handle the high pressures the cylinders in the compressor units are made of high grade steel, in place of iron. Only one stage is used and each unit is an independent factor delivering to the manifold or header at the output side. These facts apply to the smaller stations except that at these stations the intake pressure is 400 pounds or more, and the two smaller input lines are replaced by a single line, the 24-inch pipe.



Header for river crossing 30 miles west of Muscatine, Iowa.



Map of Continental Construction Co.'s system from the Texas Panhandle to Joliet, Ill.

Auxiliary Plants

At each of the 10 stations along this line there is an auxiliary plant which generates sufficient electricity to drive motors that are attached to machines handling gas, water and lighting for the stations.

At the Fritch, Tex., station there are three 420-horsepower six-cylinder 14¾" x16" Cooper-Bessemer vertical gas engines, each connected directly to 352 K.V.A. three-phase, 60-cycle, 2,300-volt alternating current Westinghouse motors, both engine and motor running at 300 r.p.m. full-load speed.

These units are mounted upon a common concrete foundation and housed in separate steel buildings near the main compressor station. The power generated is distributed to the compressors furnishing gas for fuel to the main engines, pumps for handling cooling and other water and to small generators that produce electricity for lighting purposes about the plants and grounds.

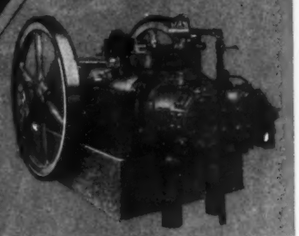
Cutting the line into station where natural and manufactured gas are mixed.

At the other nine stations along the line between Fritch, Tex., and Chicago, Ill., there are other auxiliary power stations each of which is equipped with two 14¾"x16" four-cylinder, 260-horsepower Cooper-Bessemer vertical gas engines and direct-connected to 219 K.V.A. 480-volt, three-phase, 60-cycle alternating current generators. As at the large plant

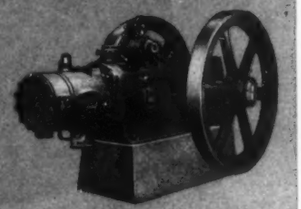
(Continued on Page 83)

EASY STARTERS—STAR PERFORMERS With Oil or Gas Fuel

TO quote a recent letter from a well known oil company: "This engine starts fine by hand. An air starter would be superfluous, as it rolls almost as easy as a 10-horsepower." (That's what Timken Main Roller Bearings, plus exceptionally good balance, do for Type GA pumping and drilling engines.) "The men on the job say this is the best engine they have ever worked with." (Such remarks are easily understandable when you study the engineering.) *Have you the new Bulletin?*



Type GAU convertible gas engine, 65 to 130 B. H. P. Gas Injection Pumps (optional on Types GAU and GA) increase economy.



Large photo shows Type GA convertible oil engine; small photo shows Type GA convertible gas engine; 25 to 60 B. H. P.

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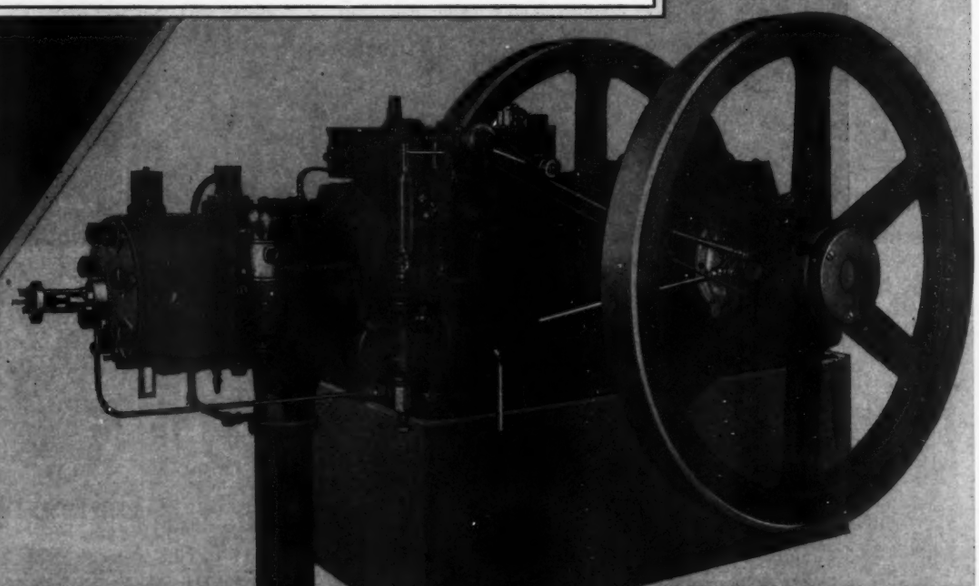
BRANCH OFFICES IN ALL PRINCIPAL OIL FIELDS

TYPE GA



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PATENTED BUBBLE TRAYS ... SCRUBBERS
FIXED GAS ELIMINATORS

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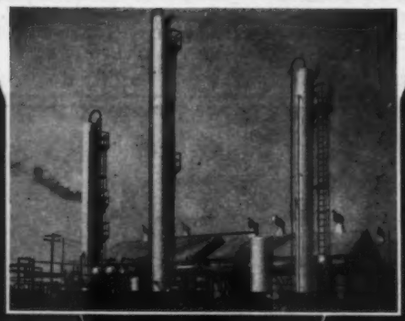
FLUID HEATERS ... FLUID COOLERS

COOLING TOWERS



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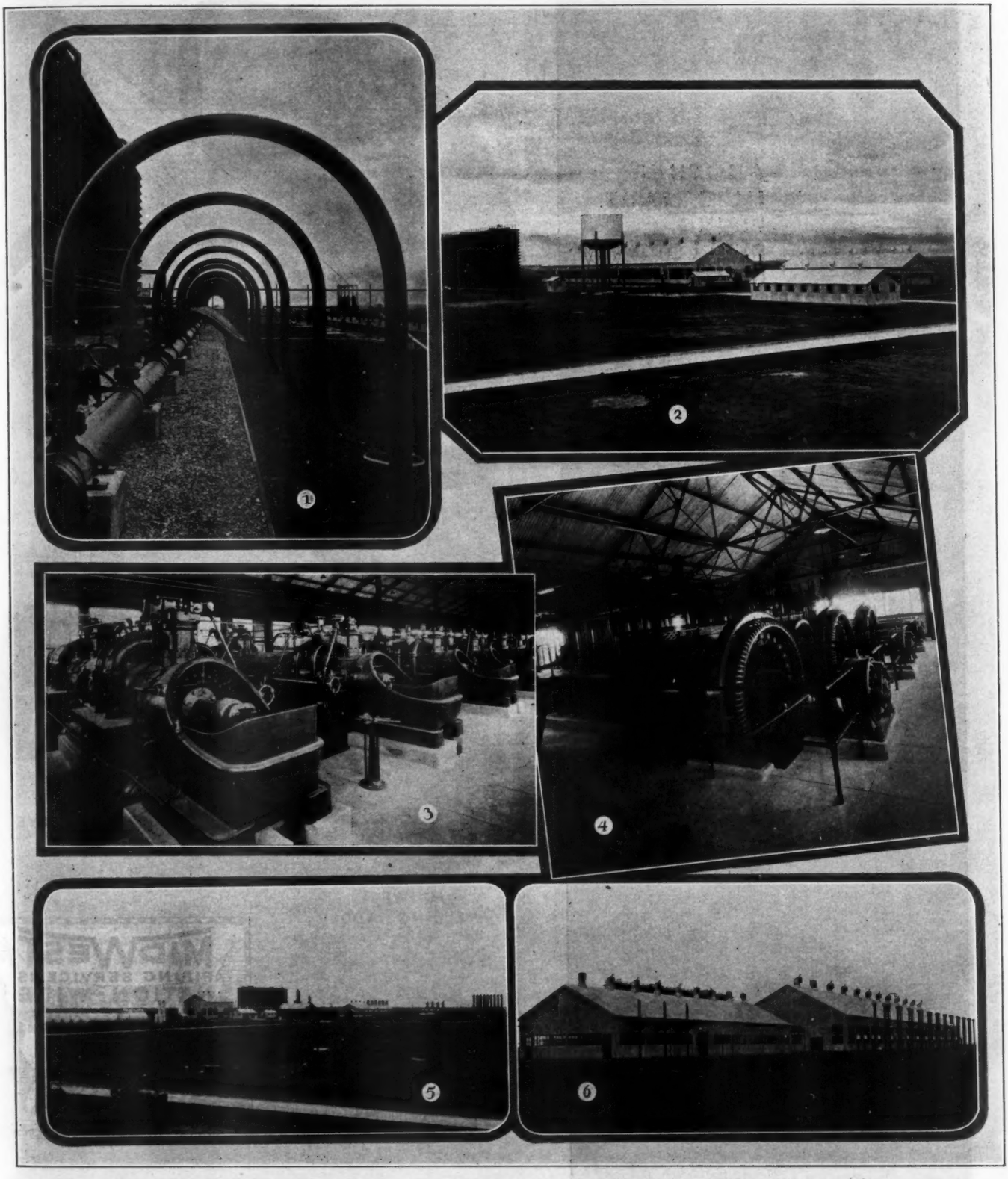
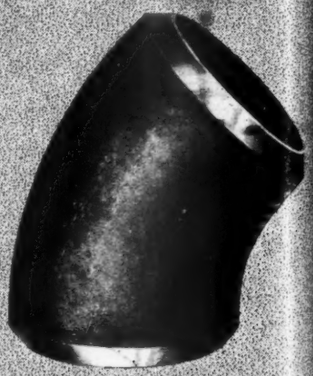
Views of Stations and Equipment On the Big Chicago Gas Pipe Line



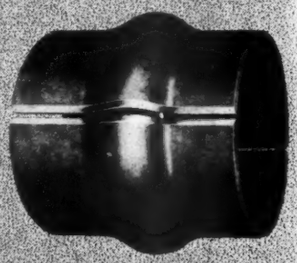
1—Piping on cooling tower from main compressor room. 2 and 6—Exterior views of compressor building and auxiliary building housing the largest compressor station in the world, at Fritch, Texas. 3—Interior of compressor room from firing end. 4—Installation in auxiliary plant at the Fritch, Tex., station. 5—Exterior view of gasoline plant of Texoma Gas Company, Fritch, Tex. Extracting gasoline from natural gas on the 24-inch gas line to Chicago.

MIDWEST
WELDING 90° ELL



MIDWEST
WELDING 45° ELL

MIDWEST
WELDING HEAD



MIDWEST
WELDING SLEEVE

MIDWEST
WELDING SADDLE

★
Large stocks have been placed in each of the four Midwest pipe fabricating plants. Additional stocks are now being located in other important industrial centers.

ANNOUNCING . . .

MIDWEST WELDING FITTINGS

ANOTHER important step forward in the application of piping is announced by Midwest after two years of careful research and testing. Midwest Welding Fittings are a particularly important development because they reduce the cost of many piping systems, in addition to improving these systems.

Midwest Welding Ells, 90° and 45°. Dimensional accuracy and uniformity are exceptional. A special *compression* sizing operation finishes Ells to exact radius and sectional diameter and in perfect round. Special fixtures for machine-beveling ends assure included angle of exactly 90° or 45°. Hydrostatic test pressure is 25% greater than mill test of corresponding pipe.

Tangents reduce the time and cost of installation; they make it easier to accurately and quickly line up pipe and fitting. Welds are more accessible and are removed from point of maximum bending stress.

Each Ell is made from *one piece* of plate by a special process developed and patented by Midwest; there is one welded longitudinal seam along the inner circumference. Final working of the metal is at welding heat and in *compression*, thus normalizing and refining the metal in the plate and the weld—it is not extruded or stretched.

Standard weight Ells stocked from 2″ to 16″ inclusive and extra heavy from 2″ to 12″ inclusive.

Midwest Welding Head. The ellipsoidal form reduces the unit stress in the metal to a minimum. The long tangent puts the circumferential weld to the pipe entirely in tension—it is not subjected to shear and bending. Dimensional accuracy, the long tangent and the 45° beveled end make the application of Midwest Heads much easier and a neat appearing job is assured.

Standard weight Heads carried in stock from 3″ to 24″ inclusive, and extra heavy from 3″ to 24″ inclusive.

Midwest Welding Sleeve. Used to reinforce a butt line weld between two pieces of pipe, it relieves the butt weld of any bending stress and much of the tensile stress to which it would otherwise be subjected. Transverse recess in sleeve permits its application over the conventional line weld. Each half of sleeve is slightly less than a semi-circle to assure snug fit, even when pipe has minimum allowable diameter.

Sleeves are carried in stock from 4″ to 24″ inclusive.

Midwest Welding Saddle. It reinforces the junction of the neck and body of a welded header. Tests prove it materially increases the strength of a welded header over customary gusset plate construction. Saddle is not for tightness; it relieves the weld between body and neck of the greater part of tensile, bending and shearing stresses to which it would otherwise be subjected.

Made in sizes from 4″ x 2″ to 24″ x 24″. Thickness is varied to suit service requirements.

• • •

Midwest Welding Fittings are made from the same material as mild steel pipe—consequently, they have the same coefficient of expansion and the same welding characteristics. On special order, they will be made from genuine wrought iron or from any of the standard alloys.

Bulletin WF-2 describes Midwest Welding Fittings in detail. Write the nearest office for a copy.

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Offices: Chicago, 208 So. La Salle Street . . . Houston, 600 Bringhurst Street . . . Los Angeles, 520 N. Anderson Street . . . New York (Ballwood Div.), 30 Church Street . . . Tulsa, 733 Mayo Bldg.

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

TEXTURE OF SAND IMPORTANT

What is the difference between the porosity of a sand and its texture? Does the texture of a sand have much to do with the quantity of oil that may be taken from a pool?—N. E. E.

This simple question, involving as it does a definition of texture, stirred unexpected discussion in the preparation of an answer. Porosity of a sand refers to the pores or open spaces between the grains that compose it, but all geologists and oil field men do not seem to have precisely the same characteristics of a sand in mind when they speak of texture. George S. Buchanan, Tulsa geologist, provides the following comments:

"From a purely geological viewpoint the texture of a rock refers to the size of the individual mineral grains making up that rock. For instance, a coarse-textured sandstone is one whose quartz grains are large, a fine-textured sandstone is one wherein the quartz grains are small, and there are all manner of gradations between. Porosity of a sandstone has to do with the space between the quartz grains. This is determined by the size of the grains, the degree of rounding, the manner of assortment or packing and the amount of cementation. Maximum porosity is found in a sandstone where the size or texture of the grains is small and uniform, where the grains are well rounded and where there is no appreciable cementing material between the grains. As an example, a cubic foot of marbles has far greater porosity than a cubic foot of oranges. It is interesting to note that the Simpson formation of Oklahoma has sandstone members (e.g., Wilcox sand) of very great porosity. The grains are often of small, even texture, very well rounded due to partial wind transportation and free from much cementation. In everyday oil field usage 'texture' and porosity' are used synonymously, whereas texture in reality is but one of a number of factors determining porosity."

"The rate at which a sand will produce is not entirely dependent on porosity," says L. C. Uren, "for two sands having the same porosity, one a fine and the other a coarse sand, will not permit the oil to travel through them at the same rate. Texture, however, does play an important part. By 'texture' is meant the size of grains and also the way in which the grains are laid down. Assuming that both are laid down in the same way, coarse-textured sands will give up the oil a faster rate than will fine-textured sands. While the percentage porosity is theoretically independent of the size of sand grains, except in so far as variation in size may permit packing of small grains in the pore spaces between the larger grains, the size of the sand grains is of interest as a measure of the average size of the pore spaces between grains. If it is assumed that the grains are spherical in form and uniform in size—an ideal condition never realized in nature but a useful assumption as a basis for analysis—the pores between grains in the closely packed condition will have a maximum cross-section equivalent to the square of the diameter multiplied by 0.0511, but the perimeter of the pore cross-section would be equivalent to one-half the circumference of an individual grain. The cross-sectional area of the pore space is important in determining the rate of flow of fluids through the sand, while the perimeter of the average pore cross-section is of interest in determining the magnitude of capillary force."

It is pointed out by Wentworth H. Osgood that the texture of an oil sand has an important effect on the frictional resistance to the movement of any fluid passing through it. The movement of oil, gas or air will be affected relatively just as much as will the movement of water by the texture of the sand, a relatively slight difference in texture making a large difference in the resistance. For instance, decreasing porosity of a sand by about one-fifth increases the resistance more than twice, and if the sand grains are decreased to one-half the former size the resistance is increased four times. Between the very fine sand and the fine gravel of the same porosities there is a difference in resistance of 2,500 times. This means that air, gas, oil or water would advance along a layer of the fine gravel about 2,500 times faster than along a layer of very fine sand.

GETTING RID OF SALT WATER

I am curious to know how salt water is being disposed of in the Oklahoma City Field and any other field under your observation which produces a large amount of salt water.—F. J. M.

Read the article in The Oil and Gas Journal of March 6, 1930, on "Salt Water Disposed of by Seepage," by L. G. E. Bignell. Other articles on salt water disposal that have appeared in The Oil and Gas Journal include: "Disposal of Salt Water and Waste Solved in Louisiana Fields," April 12, 1928, by D. H. Bancroft; "Production Problems in the Winkler Field," April 24, 1930, by L. G. E. Bignell; "Methods of Waste Water Disposal," September 5, 1929, by S. N. Oberg; "Disposal of Oil Field Brines Studied by Engineers," August 22, 1929; "The Disposal of Oil Field Brines," September 12, 1929, by Ludwig Schmidt and J. N. Devine; "Operators Solve Waste Water Puzzle," March 13, 1930, by L. P. Stockman; "Coastal Salt Water Problems Solved," July 19, 1928, by Neil Williams; "Innovation in Dehydration Process," July 26, 1928, by Neil Williams.

GAS FACTOR AND PRODUCTION

I wonder if you can inform me as to the precise relationship, if such a thing has been figured out, between the gas-oil ratio, or gas factor, of an oil well and its production.—M. N. U.

Probably this department can give no better answer to the foregoing question than by quoting from a paper by F. W. Lake, of the Union Oil Co., delivered before a meeting of the American Institute of Mining and Metallurgical Engineers. Mr. Lake said:

"The ultimate production from a natural reservoir is inversely proportional to the gas-oil ratios existing during the producing life of the reservoir, in all accumulations of petroleum where, and during the period that, gas is the major expulsive force in the recovery. In other words, in the period during which gas is the major expulsive force, the ultimate production will be increased if the gas-oil ratio is decreased and vice versa. This condition controls in the large majority of the present producing districts.

"While this relation is difficult to prove from actual operation, due to the present paucity of detailed observations, it must be admitted after a study of the forces and conditions governing the recovery of petroleum from natural reservoirs. Where gas and oil exist under pressure in sand interstices and water movement is not freely possible, the force expended in moving the oil to the well is the expansion and movement of the gas through the pressure differential existing between the interior of the reservoir and the well. If, in the untapped reservoir, pressure and solution conditions are such that the relation between gas and oil volume at atmospheric conditions is 100:1; and if during the producing period until the gas is exhausted, the relation between the gas and oil volumes produced is 300:1; then only one-third of the oil has been produced and the remaining two-thirds cannot be recovered unless some extraneous force is introduced into the reservoir. This serves to illustrate the importance of gas-oil ratio control during producing operations.

"Eliminating natural conditions in a reservoir which govern gas-oil ratios, such as the physical properties of the oil and gas, the physical characteristics of the reservoir strata, and the original pressure and solution conditions in the reservoir, which cannot be controlled by operation practice; and also eliminating operating conditions which apply to the reservoir as a whole, such as well spacing, well locations, relative completion dates, various penetrations and drilling practice; there remains but one condition in each well which influences the gas-oil ratio and which is subject to control by operation practice, namely, the effective back pressure existing in the well opposite each of the producing strata. For each well at a certain time in its life there is an effective back pressure which will give the minimum gas oil ratio, but this effective back pressure may or may not be within the limits determined by the various mechanical and economical conditions of actual practice. The minimum gas-oil ratio varies widely in different wells, in different areas, in different producing horizons, and in the same well at various periods during its producing life. The minimum gas-oil ratio obtainable may vary from as low as a few cubic feet per barrel to as high as several thousand cubic feet per barrel and in each case be a minimum for a certain well at a certain time.

"Since, for each well, gas-oil ratio control lies in the effective back pressure opposite each of the strata contributing to production, the various methods of production are more or less flexible in furnishing means for changing the effective back pressure to obtain the minimum gas-oil ratio."

WHY WAS IT CALLED THAT?

OKMULGEE

Okmulgee, the name of a city, a county and an oil pool in Oklahoma, is from the Creek Indian "okmulke," which means bubbling water. It is supposed that an Indian village on the site of the city was near a spring, which suggested the name. The spelling was changed to Okmulgee.

THE GAS METER'S HABITS

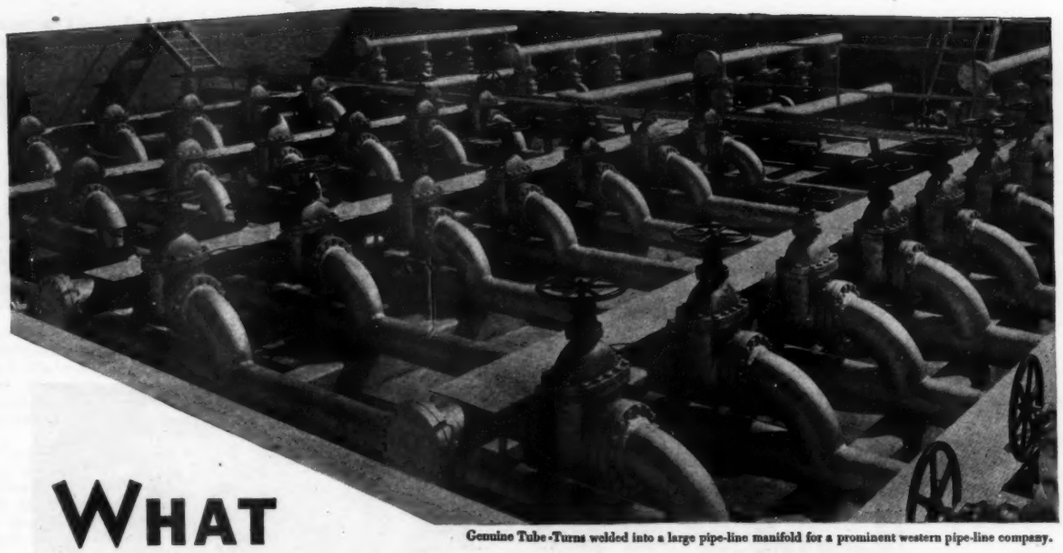
Although I do not sell gas directly to the consumers, as a gas producer I often hear the statement made that the distributing companies gyp the consumer by using meters that run too fast. I doubt the truth of the statement. Are you able to tell me how much truth there is in it?—S. L. T.

The following answer to your question is provided by the Pittsburgh Equitable Meter Co., Pittsburgh, Pa.:

"It is safe to say that for every gas meter which runs fast, there are 10 meters which run slow. A meter which is manufactured in a modern plant and which measures reasonably clean gas will remain accurate for 5 to 20 years' service. A politician in Pennsylvania has asserted that when and if he is made governor he is going to insist that gas meters be inspected much more frequently, in which case we prophesy that the gas companies will receive greater benefits than the consuming public. For every defect that causes a meter to run fast, there are at least 10 which will reduce registration. Like many another political promise meant to gather votes this friend of greater state supervision would not only add to taxes by creating a larger force of official inspectors, but would increase gas company revenue and bring about the condemnation of many old meters which should have been scrapped long ago for the benefit of public utility stockholders.

"In one of the small towns in an old established natural gas territory, meters were in use that had been made 25 years ago, and a change in management brought a decision to install new iron meters. No accurate figures were available to show the saving, but the startling fact was brought out that a very severe winter preceding the change did not show as much gas revenue as was received in a very mild winter following the change to a more modern meter.

"Regulators are another source of loss to the gas companies. There are hundreds of regulators in use which were built 20 years ago which will not control pressures with reasonable accuracy. An increase in main line pressure gives every consumer a greater pressure, so that the volume of higher pressure gas, though measured accurately, represents a larger amount of gas at the contract pressure, and the difference in volume when figured back to the contract pressure is a complete loss to the company. Of course, if every consumer has an individual regulator, the delivery pressure may not vary, but regulators are undoubtedly a source of loss when they are not designed for sensitive control and maintained in a satisfactory manner."



Genuine Tube-Turns welded into a large pipe-line manifold for a prominent western pipe-line company.

WHAT EVERY ENGINEER SHOULD KNOW...

THERE seems to be some difference of opinion, these days, as to what constitutes *uniform walls* in a fitting for pipe welding.

When we say Tube-Turns have uniform walls, we mean that the outside wall (see "A", in illustration below) has the same thickness as the inside wall ("B")—and that *both* walls always meet the A. S. T. M. tolerance for wall thickness at *all* points.

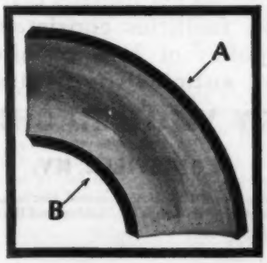
Tube-Turns are the ONLY seamless fittings for pipe welding of which this is true. The only known method of consistently producing uniform walls is the Tube-Turn process, which does *not* consist of bending, stamping or casting.

Uniform walls are valuable because they assure uniform strength *at least* equal to that of the pipe; uniform resistance to corrosion and erosion; uniform freedom from stress; uniform satisfaction in service.

If you are selecting pipe fittings on merit, we urge you to send now for Bulletin 103. No obligation, of course. *Address:* TUBE-TURNS, *Incorporated,* 1311 South Shelby Street, Louisville, Kentucky.

TUBE-TURNS

The Original Fittings for Pipe Welding

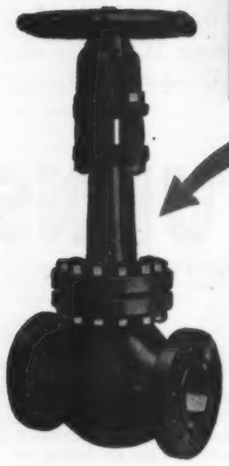


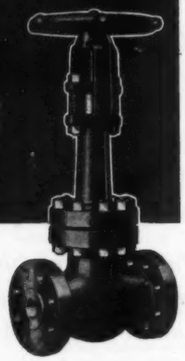
Short-radius pipe bends can be made so that their outside appearance closely resembles that of Tube-Turns. Such bends, however, cannot have uniform walls. If in doubt as to what you are buying, cut samples horizontally, as in the photo at the left, and see whether wall "A" and wall "B" are uniform.

NOTE: *Unretouched photograph of a stock Tube-Turn cut away to show uniform walls. Walls painted black for sharper photographing.*

Vogt

Drop Forged Integral Flanged VALVES~





6"-600 Lbs. at 900°F.

4"-1350 Lbs. at 900°F.

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Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas, and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

GRAVITY AND WHAT IT MEANS

Kindly explain "gravity" in your technical column? What it means, when and why? This refers to gravity of oil, gasoline, etc.—E. W.

The gravity of petroleum liquids may more accurately be called density, which is defined as the ratio of mass or volume to an equal volume of another substance, usually a standard. Water is the standard for the comparison of the density of liquids, so any statement of the gravity of oil means a relative value when compared with water under the same conditions. It is a numerical value which will serve as an index of the weight of any definite volume of the product and consequently has a fixed relation to specific gravity.

The scientific method for expressing density is in terms of specific gravity. Specific gravity may be defined as the ratio of the weight of a given substance, such as oil, to the weight of an equal volume of pure water under identical conditions. Since most oils are lighter than water, true specific gravities of oils must be shown in some figure, decimal, less than one, representing the standard for water. The actual determination of weight would be inconvenient and expensive if all petroleum and petroleum products were graded by weight, so an indirect method is employed in which an indication is obtained by means of an hydrometer and this may be coverted to weight when desirable.

The hydrometer is an ancient instrument, usually of glass, designed to make use of the principle of Archimedes, that when any solid floats in a liquid, the weight of the liquid displaced is equal to the weight of the floating solid. If an ordinary wooden ruler is weighted at one end so that it will float upright, it will sink in water until a certain division on the scale is reached. This reading multiplied by the area of the cross section of the ruler will give the volume of a mass of water equal to that displaced by the ruler, also equivalent to the weight of the ruler itself. Placing this ruler in some other liquid of different specific gravity it will sink to another division on the scale, and as before the volume of a mass equivalent to the weight of the ruler will be obtained. A ratio made with these two quantities representing the volumes of the two liquids will give the specific gravity, but as the cross section of the ruler is a constant quantity, it is only necessary to compare the two readings on the scale. The hydrometer is a tube-like instrument with a weighted bulb at the bottom to cause it to float vertically in a liquid, and a stem at the upper part which may be graduated in a number of different ways; the one commonly used in the United States being graduated in whole numbers called degrees, and tenths.

The French chemist, Antonine Baume, 1728-1804, famous for many discoveries, arranged two hydrometers, one for use in liquids heavier than water and the other for liquids lighter than water. The instrument for light liquids bears the relation to specific gravity expressed by the formula:

$$\text{Degrees Baume} = \frac{140}{\text{Specific gravity } 60^\circ \text{ F.}} - 130$$

This modulus has frequently been modified, and while the density of petroleum liquids is stated in foreign fields in either specific gravity or Baume degrees, the petroleum industry of the United States has accepted the recommendation of the American Petroleum Institute and adopted the modulus:

$$\text{Degrees A.P.I.} = \frac{141.5}{\text{Sp. gr. } 60^\circ/60^\circ \text{ F.}} - 131.5$$

The specific gravity scale is not well adapted to use with petroleum liquids because a large number of instruments are required for the range to be covered if the divisions on the scale are to be enlarged sufficiently for rapid use. The Baume or A.P.I. scale, when divided into whole numbers and two-tenths of a degree, is convenient. Hydrometers scaled for specific gravity bear the relation to A.P.I. degrees according to:

$$\text{Specific gravity} = \frac{141.5}{131.5 + \text{A.P.I. degrees}}$$

Either specific gravities or degrees Baume are required when indicating the densities of petroleum liquids for export, but all gravity figures for domestic use are in A.P.I. degrees. The relative values for the three systems are indicated in the table following:

RELATIVE VALUES FOR GRAVITY

Specific gravity	Baume degrees	A.P.I. degrees
1.0000	10.0	10.0
.9333	20.0	20.1
.8750	30.0	30.2
.8235	40.0	40.3
.7778	50.0	50.4
.7368	60.0	60.5
.7000	70.0	70.6
.6667	80.0	80.7
.6364	90.0	90.8
.6087	100.0	100.9

Extended tables, with weights per gallon, temperature corrections, and other data are published in National Standard Petroleum Oil Tables, Cir. 154 of the U. S. Bureau of Standards, which may be obtained from the Superintendent of Documents, Washington, D. C., upon payment of 30 cents.

Since water is the standard for specific gravity and many of the data tables are based on the weight of water it is convenient to convert A.P.I. degrees to specific gravities before calculating the weight per gallon, for example, when tables or curves are not available. The weight of a gallon of water is the weight of 231 cubic inches of water at 60° F., and under standard conditions of humidity and pressure. This weight is 8.32828 pounds but for ordinary use the approximate figure of 8.33 pounds is used; then converting the A.P.I. indication to specific gravity and multiplying by 8.33 will give the weight per gallon of the petroleum liquid.

When any petroleum liquid or solid is heavier than water the density should be expressed as specific gravity.

METHODS FOR TESTING PETROLEUM PRODUCTS

Can you tell me where I can secure a copy of the latest A.S.T.M. Approved Methods of Testing Lubricants and Liquid Fuels? I have a copy of U. S. Government Technical Paper 323B, the title of which is United States Government Master Specification for Lubricants and Liquid Fuels and Methods for Sampling and Testing. This is dated 1927, revised October 21, 1927.—B. H. W.

Committee D-2 of the American Society for Testing Materials has prepared standard and tentative standard methods for the examination of petroleum products. Copies of these reports may be obtained from the society, Philadelphia, Pa.

The methods adopted by Committee D-2 have in several instances been included in Technical Paper 323-B, the latest revision of which is that of October, 1927. A new edition of this publication is expected to become available very soon.

KINDS OF SULPHUR IN GASOLINE

Is it possible to give a list of the different kinds of sulphur that may be found in gasoline? What I have reference to are such as free sulphur, mercaptans, etc. If you can furnish a list of these and if possible the corrosive influence for each one it would be appreciated.—T. H. L.

The several forms in which sulphur may be found in gasoline depends upon the character of the petroleum from which it is derived, the refining process, including the cracking operation, and the final purification. Whatever forms may be present, it is thought that they are largely produced by decomposition and rearrangement during the heat treatment, including topping, cracking and the subsequent refining with chemicals.

The total sulphur may be found by burning a small quantity of gasoline under fixed conditions, absorbing the products of combustion, and determining the sulphur in these, then calculating back to the original. A more accurate method is to make the determination in an oxygen bomb. The first mentioned is the A.S.T.M. method given in Technical Paper 323B, U. S. Bureau of Mines, for the inspection of naphthas and illuminating oils.

A list of the possible forms of sulphur that may be found in gasoline is shown in the table.

Forms of Sulphur in Gasoline

Name—	General formula
Free sulphur	S
Mercaptans	R.SH
Alkyl sulphides	$R_2.S$
Disulphides	R.S S.R
Thiophene	$(CH.CH_2)S$
Hydrogen sulphide	H_2S
Carbon bisulphide	CS_2
Alkyl sulphates	$(C_nH_{2n+1})_2SO_4$
Sulphonic acids	$R.SO_3H$

The identification and quantitative determination of all of these in any one sample of gasoline would be difficult, and at the present time are not demanded by the trade. Total sulphur, certain of the organic sulphur compounds, and corrosive sulphur may be determined or simply detected by standardized tests.

The activity of free sulphur when heated to high enough temperature to combine with the oxygen of the air, then the oxide will combine with moisture to form sulphuric acid. The mercaptans are especially corrosive, as is hydrogen sulphide. Thiophenes belong to the cyclic or closed ring hydrocarbons and are difficult to decompose; sulphur when present in this form is difficult to remove from a distillate. The thiophenes do not respond to the ordinary sweetening reagents, such as doctor solution, copper oxide, lime, or sodium hypochlorite. Being one of the most stable of the sulphur compounds, the thiophenes are not considered to be corrosive to the degree that is true of the simpler substances, such as the mercaptans and hydrogen sulphide. The alkyl sulphides, disulphides, and carbon disulphides are not markedly corrosive. The alkyl sulphates and the sulphonic acids are liable to be found in a product that has been in storage for a long time, especially a product that has not been fully washed after the sweetening process.

The nature of these compounds of organic sulphur that may be found in gasoline indicates that the form in which the sulphur is present is of more importance than the quantity of total sulphur. The presence of corrosive sulphur may be readily determined by means of the copper strip test.

KNOCK COMPRESSION RATIO NATURAL GAS

Is it possible, by raising the compression ratio, to produce a knock when using natural gas as fuel in an internal combustion motor? If so what is the compression ratio at which natural gas will knock?—A. B. L.

The conditions which tend to produce knocking in an internal combustion engine include—engine design, fuel, nature of carbon compounds present, compression, air fuel ratio, temperature, atmospheric pressure, carbon deposits, and other factors. It appears that general conclusion as to the cause of detonation is too rapid combustion of a part of the fuel. Quoting from the article "Factors in Detonation of Motor Fuel" by Charles D. Hawley, The Oil and Gas Journal, September 25, 1930, page 46:

"It has long been known that attempts to increase the efficiency and power output of internal combustion engines by increasing the compression ratio have been met with resultant increases in detonation and it is commonly thought, therefore, that there also exists a definite relationship between compression ratio and detonating tendencies. As a matter of fact, the absolute value of compression ratio has little or no effect on detonation. If any particular engine is considered, there is, in general, an increase in compression pressure and temperature with each increase in compression ratio, and these increases in compression pressures and temperatures are accompanied by increases in detonation tendency.

"It may be remarked that detonation can be induced or eliminated in any particular engine having a sufficiently high compression ratio by the simple process of opening or closing the throttle. Opening the throttle permits a greater pressure within the engine cylinders during the suction stroke and therefore causes greater compression pressure and greater pressure during the burning of the last portion of the charge. Conversely, closing the throttle restricts the flow of charge into the cylinders thus reducing pressures all through the cycle and, consequently, reducing the detonation tendency.

"When these facts are considered, it is clearly seen that different engines, due to variation in such factors as design of the manifold, inlet valve size, and combustion chamber cooling, may easily be equal in compression ratio but quite different in detonation tendencies."

It is not possible to make a direct reply to the question, but it may be that this short discussion will answer. A further analysis of the factors influencing detonation may be found in the article indicated.

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ELECTRIFICATION OF EAST TEXAS FIELDS CAREFULLY PLANNED

The East Texas oil field, with barely seven months of development, is now termed the largest field in the world. The attention of the entire oil industry is centered upon this new field. In this short period of time 1,600 producing wells have been completed with initial potentials ranging from 1,000 to 15,000 bbls. of oil per day. The average daily production for this field for the week ended August 15 was 738,035 bbls., or almost 10 times that produced in the next largest oil field in the country.

The increased demand for electricity in the East Texas oil field has been as phenomenal as the growth of the field itself. While electric power is used primarily for pipe line pumping and gathering stations, it also finds a ready market for general lighting and power purposes in the various oil field practices.

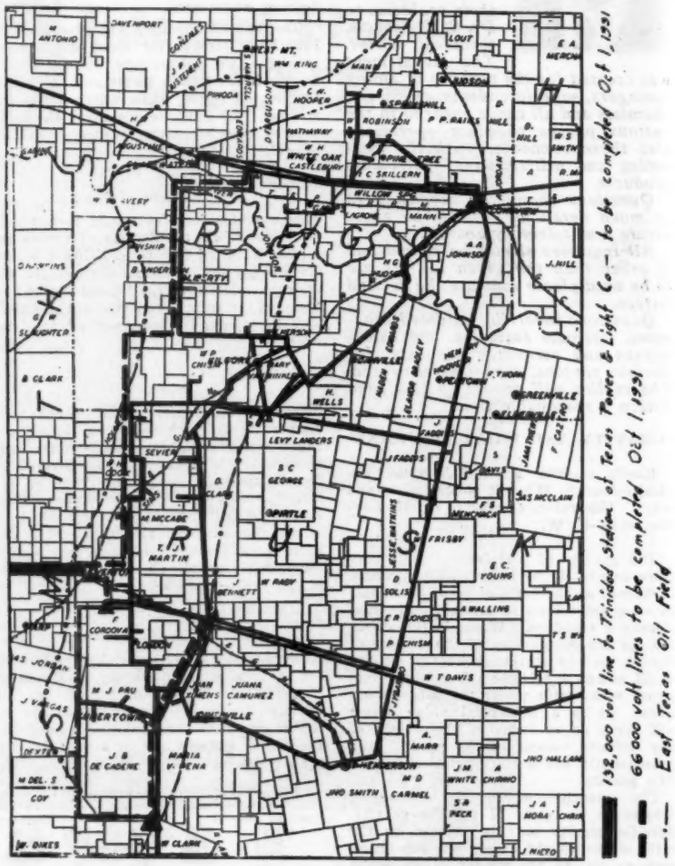
Electric service is supplied in the oil field from the transmission system of Southwestern Gas & Electric Co. with general offices in Shreveport, La.

The first discovery well was in Joinerville, a small community approximately 7 miles west of Henderson, Tex. It later developed that this well was on the extreme southeastern corner of the huge field. The showing of this well was not particularly encouraging although geologists were of the opinion that a small oil pool existed in the vicinity of this discovery well.

The major companies did not take a decided interest in the East Texas Field until a few weeks later when the Bateman well was brought in about 12 miles north of Joinerville, this latter well having an initial flow of approximately 10,000 bbls a day of high gravity oil. This indicated a 12-mile extension of the original pool. The activities consequently greatly increased in the Bateman area as well as in the territory between Joiner and the new pool. Kilgore, Tex., was the nearest town to the new Bateman discovery, this town having a population of about 500. It immediately became the most outstanding boom town in East Texas. The population increased to approximately 15,000 within a few weeks.

Shortly after the Bateman discovery, a further test was made approximately 14 miles northeast, and as a result the Lathrop well was brought in with an initial flow of approximately 10,000 bbls. of high gravity oil. This indicated to geologists the possibility of one continuous pool of high gravity oil from a saturated sand more than 30 miles in length.

Tremendous leasing activities followed, this field attracting the attention of almost every major oil company and hundreds of independents. Only relatively small tracts could be leased or purchased by any one company in view of the nature of the ownerships in the East Texas territory, and in view of the rapid extension of this great field. One of the greatest drilling campaigns then started, fostered by the necessity for offsets, low drilling costs, the high gravity and large quantity of the oil and the proximity to ready markets.


132,000 volt line to Trinidad Station of Texas Power & Light Co. - to be completed Oct 1, 1931
66,000 volt lines to be completed Oct 1, 1931
East Texas Oil Field

Electric transmission and distribution lines of the Southwestern Gas & Electric Co. in the East Texas oil field.

Selling Electric Service

As soon as it was realized that East Texas had a large potential oil field, the power company made contacts with the major oil companies, all of which indicated that their holdings in the new field would be developed. The power company then located additional substations and extended its distribution system to provide facilities in order that service would be available when required by the oil companies. Further contacts were then made with the oil operators, explaining rates and policies, leaving maps of transmission and distribution facilities.

Loading Racks

In view of the absence of oil trunk lines in the early development period, it

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Oil Well Supply Company
The Lorain Steel Company
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ISN'T IT BETTER & CHEAPER

to shut this gate

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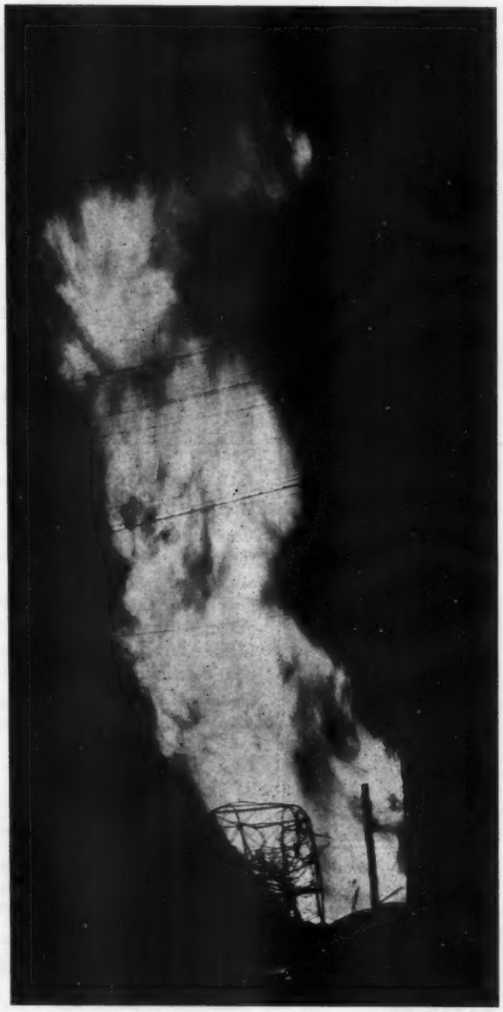
RISK *this!*



THE SHAFFER CELLAR CONTROL GATE is a simple device, which is easily operated from outside of the derrick by means of a handwheel. It gives the operator full protection whether there is drill pipe in the well or not. Positive in action, it is a complete unit in itself, that can be adapted to shut off around drill pipe, casing, or can be made into a master gate by using a complete shut-off arrangement.

We also have a low-priced line of preventors for lower pressures. Write for further information.

Why risk a catastrophe like this when adequate equipment can be had at practically no cost? (Shaffer Blow-out Prevention Equipment can be moved from the well when completed and used on other wells.)

SHAFFER TOOL WORKS

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OKLAHOMA CITY and HOUSTON

Fluid Packed Pump Co.—Mid-Continent

FOREIGN—Oilwell Supply Co.

SHAFFER HIGH PRESSURE EQUIPMENT

was necessary to transport the oil to loading racks and thence by rail to the market. Electric power was first required for the operation of gathering stations to pump the oil from the field to the loading racks and for pumps to lift the oil into the tank cars.

Trunk Pipe Lines

The major pipe line companies soon began the building of trunk lines to move the East Texas oil, among the first being the Humble Pipe Line Co., the Gulf Pipe Line Co., and the Magnolia Pipe Line Co. The number of trunk pipe lines has increased until today there are 16 major lines taking oil from the East Texas Field with two additional lines under construction.

There follows a list of the main pipe line pumping stations in and near the East Texas oil field served by the Southwestern Gas & Electric Co. This also gives a list of the pipe line stations using other than electric power. The total connected load in electric horsepower in main line stations is 15,450 horsepower as compared with 3,833 horsepower in oil, gas and steam engines.

Other Electric Power

Oil is fed to the main line stations of the trunk pipe lines by gathering systems of the various oil companies. Gathering stations are located throughout the field in places where the oil will not flow by gravity. It is estimated that 80 per cent of these gathering stations are operated by means of electrically driven pumping units. Main pipe line stations and gathering stations comprise a large part of the total 31,400 electric horsepower contracted as of August 15, 1931, the remainder being for miscellaneous power in oil refineries, machine shops, water stations, etc.

The maximum demand established for the week of August 15 was 13,900 kilowatts with a consumption of 1,922,220 kilowatt-hours for that week. This is equivalent to a monthly consumption of 8,250,000 kilowatt-hours and a load factor of approximately 80 per cent.

The Southwestern Gas & Electric Co. is supplying 50 towns in its East Texas divisions. All of these East Texas towns consumed 1,312,733 kilowatt hours during July of 1930. In other words, the East Texas oil field alone is using 6.3 times as many kilowatt-hours as all of East Texas in the corresponding month of 1930.

The company also supplies electric service to Shreveport, La., a city of 76,000 population, which in July, 1931, consumed 4,454,613 kilowatt-hours for all lighting and power purposes. In other words, the East Texas oil field is already consuming almost twice as many kilowatt-hours as the city of Shreveport.

Community Growth

The small communities in East Texas have experienced a growth in keeping with the new field. Longview, Tex., the largest town in the immediate vicinity of the oil field, had 1,275 electric customers in July, 1930, as compared to 2,200 customers in July, 1931, Kilgore, Tex., had 119 customers in July, 1930, as compared to 909 in July, 1931. New offices have been opened in Kilgore and Gladewater, Tex., in view of this phenomenal growth.

This general business activity in East Texas has also had its effect on the company's merchandise sales, ice sales and general lighting activities in this new territory.

Transmission and Distribution Facilities

When the activities started at Joinerville following the initial discovery, the Southwestern Gas & Electric Co. made a survey of the business and authorized an extension of a 2,300-volt rural line to give lighting service to the new inhabitants at Joinerville. Before the line was completed, it was found necessary to increase the voltage from 2,300 to 11,500 volts. While construction was under way on this line, the Bateman discovery was made, and it became necessary to strengthen the line from Longview to Kilgore. Before this was completed, construction was authorized to connect between Kilgore and Joinerville in order to close the 11,500-volt loop. Before this was actually completed, it was found desirable to build a second 11,500-volt line between Joinerville and Kilgore, approximately 2 miles west of the first line.

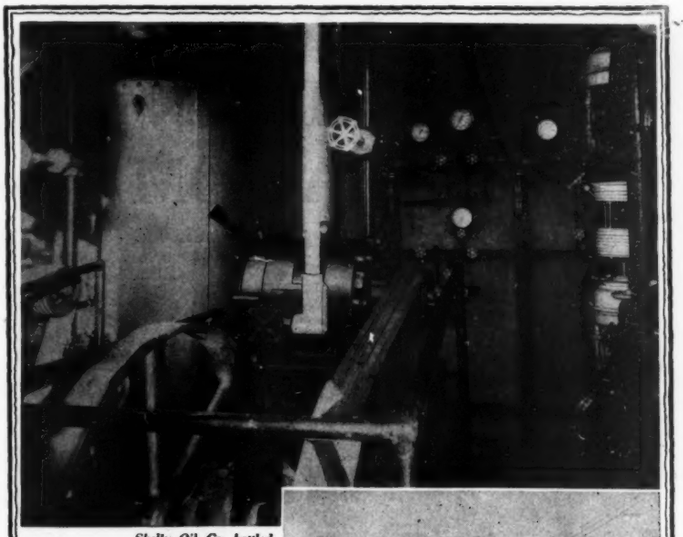
Four major substations of 3,000 KVA capacity from 66,000 to 11,500 volts were located at Longview, Kilgore, Gladewater and Friars Switch respectively.

Increased demands for power soon required that a 66,000-volt line be built from Longview through Beckville and thence to Friars Switch, as indicated on the map of the company's transmission line system.

The extension from Kilgore to Gladewater was then completed and further loops were made in order to assure maximum of service and minimum of shutdown through the action of automatic reclosing breakers. In the past few days another 3,000 KVA 66,000/11,500 substation has been completed near Overton and additional capacity of 3,000 KVA installed in the Friars Switch substation. The company recently completed another 66,000-volt line from the generating sta-

MAIN PIPE LINE PUMPING STATIONS
TRUNK PIPE LINES
EAST TEXAS OIL FIELD
(In territory supplied by Southwestern Gas & Electric Co.)

Pipe line company—	Elec. H.P.	All other H.P.	Type other H.P.	Remarks—
Humble Pipe Line Co.				
Marshall Station	1,600			
Arp Station	1,040			
Gladewater Station	480			
Bateman Station	630			
Longview Station		1,225	Oil Eng.	Engines transferred from another location.
Gulf Pipe Line Co.				
Whiteman Station	1,000			
Fishman Station	250			
Magnolia Pipe Line Co.				
Carthage Station	1,500			
Kilgore Station		1,510	Oil Eng.	Engines transferred from another location.
Texas Pipe Line Co.				
Reavers Station	1,050			
Shell Pipe Line Corp.				
Kinsloe Station	1,050			
Sun Pipe Line Co. and Yount Lee Oil Co.				
Troup No. 1 Station	1,100			
Arkansas Pipe Line Co.				
Castor Station	300	400	Gas Eng.	
Hope Station	500			
Atlas Pipe Line Co.				
Kilgore Station	500			
Arnold Station	500			
Norris Station	250			
Longview Station		400	Oil Eng.	
Marshall Station		300	Steam	
Atlantic Pipe Line Co.				
Horton Station	650			
Sinclair-Texas Pipe Line Co.				
Troup Station	1,500			Energy sold to Texas Power & Light Co., which company delivers to station.
King Station	500			
Tyler Pipe Line Co.				
Overton Station	450			
Liberty Pipe Line Co.				
Brightwell Station	300			
Sinco Station	250			
	15,450	3,835		
Total all types	19,285			



Skelly Oil Co. bottled gas plant, Spencer, Ia

Bottled Gas Plant *Protected* with Louis Allis "Explosion-Proof" Motors

Here is one of the new "Bottled Gas" or "Liquid Carburetion" plants, that are bringing gas service to many towns previously denied this convenience due to being located too far from ordinary sources of supply of natural or artificial gas.

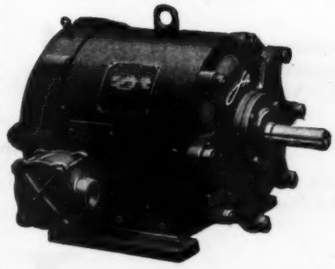
In this plant the finished gas is made by vaporizing liquid butane and carbureting with air from two compressors. The compressors were equipped with Louis Allis Type E "Explosion-Proof" motors... to protect the plant, in case of leaking gas, against the fire hazard incurred where ordinary motors operate in explosive atmospheres.

It was the L.A. Type E motor that first made possible the direct connection of approved motors to compressors, pumps, fans, centrifuges, etc., in explosive atmospheres... without the conventional fire wall. Now L.A. "Explosion-Proof" motors and starters... approved by Underwriters' Laboratories for petroleum and equally hazardous atmospheres...are widely used in this and foreign countries... in chemical plants, dry cleaning plants, and throughout the petroleum industry. Be on the safe side! Follow the leaders! Standardize on

LOUIS ALLIS

Companion Pioneers

The *First* "Explosion-Proof" Fan-Cooled Motor



The *First* "Explosion-Proof" Air-Break Starter

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Milwaukee, Wis.

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AN "AMERICAN" IN OKLAHOMA

AN "American" Oil Well Pumping Unit is on the job at the Carter Oil Company plant at Oilton, Oklahoma. This is a No. 4-A 1822 unit, installed in a well approximately 2500 ft. deep, using 2" tubing and ¾" rods, and pumping on a 24" stroke. This particular unit is direct-driven by an electric motor.

"American" Oil Well Units provide for a wide variance in the type of drive and are designed for a wide range of conditions. They are totally enclosed, compact units. Gears and pinions are oil immersed, and all bearings except two are automatically lubricated. Power consumption is small, and they are efficient and dependable in performance.

Detailed figures and engineering data of typical installations of this equipment in both this country and others are available. Ask for them!

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tion at Shreveport to Marshall which will enable delivery of more power to the field and duplicate service.

In order to further strengthen its position in supplying electric service to the oil field, Southwestern Gas & Electric Co. has recently completed negotiations with two neighboring power companies for additional interconnections. One interconnection is from the west with the Texas Power & Light Co. This provides for the building of a 132,000-volt transmission line from the latter's Trinidad generating station to a point near Overton, Tex., where Southwestern Gas & Electric Co. is building a 25,000 KVA substation to transform this voltage to 66,000 volts.

The other interconnection is on the east and is with the Arkansas Power & Light Co. This provides for the building of a 110,000 volt transmission line to Shreveport, La., which will provide a connection with the Sterlington generating station.

Construction has already begun on both of these interconnections which are scheduled to be completed by October 1, 1931.

This main construction program also provides for the building of a 66,000 volt transmission line from Overton to Gladewater which will close the 66,000 volt loop around the oil field.

These facilities will provide sufficient power capacity to meet all demands of the oil operators and the many major interconnections from different directions will assure the maximum in continuity of service.

By anticipating the requirements of the oil operators in East Texas, the Southwestern Gas & Electric Co. has been in a position to have electric service available to the oil companies as soon as oil pumping equipment could be installed. This has attributed largely to the great demand for power now being made.

Oil Field Office

As a rule oil fields in the past have been such that they were in the vicinity of some one town served by the electric utility. In this way the electric company's office in the particular town took charge of the oil field business.

The East Texas oil field has presented a different problem in that it is so large that it includes four offices of the Southwestern Gas & Electric Co. namely, Longview, Henderson, Kilgore and Gladewater. Some of the major companies have operations in practically all parts of the field and do not want to be occasioned any inconvenience by being metered, billed, etc., through four different offices.

This difficulty as well as others from an operating standpoint made it desirable to open an oil field office to have jurisdiction over the entire oil field. Such an office has been opened with headquarters in Longview. In this oil field office, there is a manager, bookkeeper, meter reader, etc., and all records and accounts of the oil field customers are kept here. Bills are made up in this office where they are sent to the general office for checking, thence mailed to the customer for payment.

Estimated Future Demand

In view of the many contingencies pertaining to the development of the East Texas oil field, it is naturally difficult to accurately estimate the future demand for electric power. The kilowatt demand of the field will be influenced largely by the proration allowable set by the commission. Other factors such as gas pressure, price of oil, need of offsets, etc., have their influence on the rate of development of the field and the demand for electric power.

With certain assumptions, however, and by comparisons with other fields, it is possible to estimate the future use of electricity with a reasonable degree of accuracy.

There have been three attempts to prorate the field—the first having an allowable 160,000 bbls. a day. This was later raised to 190,000 bbls., then 250,000 bbls. and the actual oil produced averaged 738,035 bbls. a day the week prior to the shut down.

It is assumed here the allowable will average 400,000 bbls. a day over the next three years. The major pipe line companies have facilities already available to move more than 800,000 bbls. a day.

Geologists were first of the opinion that the field had 110,000 to 125,000 proven acres with a potential of 20,000 bbls. an acre. This is equivalent to a total potential of 2,500,000,000 bbls. of oil. The more conservative estimates are now as low as 12,500 to 15,000 bbls. an acre with 90,000 proven acres.

Assuming the 90,000 acres to be correct and a potential of 17,000 bbls. an acre, there is a total potential of 1,530,000,000 bbls. Based on production of 400,000 bbls. a day, this field will have a life of 10.5 years. Geologists further agree that the best results can be obtained by the location of one well to every 10 acres.

Geologists divide the field into three zones of pressure control:

First—Hydrostatic zone comprising approximately one-third of the west limit. Wells in this area will probably flow 50 per cent of the total recovery.

Second—Volumetric zone, this being about one-third of the field, and lying directly east of the hydrostatic zone. The pressure in this zone is hydrostatic and gas pressure. Wells in this area will have the largest percentage of flowing production.

Third—The capillary control zone in the east one-third of the field in which area the wells will probably flow least without pumping. Geologists differ to some extent on the time that the majority of wells will flow without the need of pumping equipment. It is reasonable to assume that they will flow for many months to come in some sections of the field.

Approximately 65 wells are now being pumped, many of which are using electric power, and it is probable that others on the west edge of the field will soon be on the beam.

It is probable that the greatest demand for electric power will be made when it becomes necessary to pump the majority of the wells. It is estimated that it will require about 13 to 25 horsepower to pump wells on the beam. Even if a very conservative number of wells utilize electric power, it may be realized that the increased demand will be great in view of the large number of wells.

The demand for power for producing the oil will probably not be as great as in the Oklahoma City Field as air lift was utilized in the latter case, whereas there will probably be no pumping by this method in East Texas. Present indications are that most of the wells will be put on the beam, although there is a possibility of some companies utilizing the submergible electric oil well pump.

Conclusion

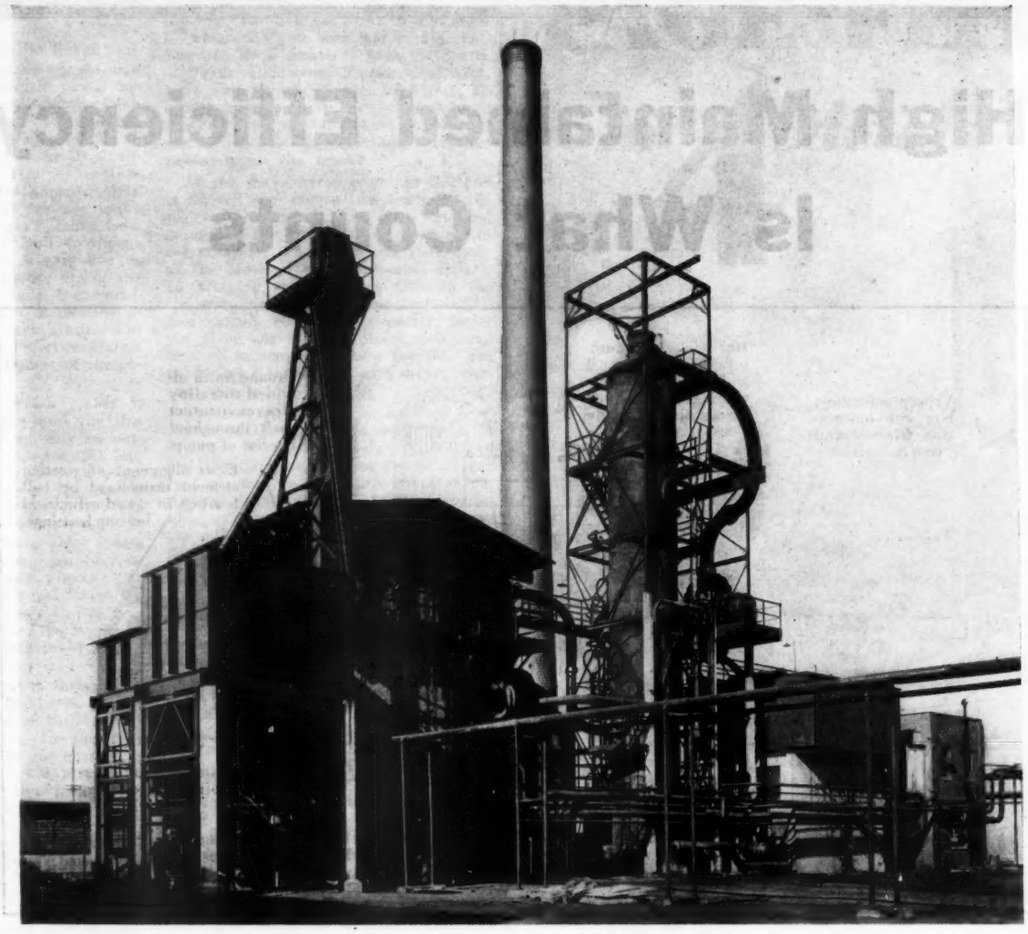
The East Texas oil field, now the largest in the world, is already largely electrified. The most conservative estimates give a minimum potential of 1,300,000,000 bbls. of oil while the more liberal estimates are as high as 2,500,000,000. Even at the rate of 400,000 bbls. a day, it seems apparent that the field will be in existence for many years. Based on the present trend, the number of completed wells will continue to increase and from all records on hand, many of the major oil companies will continue to use in increasing amounts, the electric service available to them.

BUCKEYE PIPE REUNION

FINDLAY, Ohio, Sept. 19.—The Buckeye Pipe Line Co. Retired Employes Association held its annual reunion and banquet in Findlay with 25 of the veterans present. The following officers were elected: President, O. S. June, Lima; vice president, P. O. Hopkins, Toledo; E. F. Murphy, of Findlay, secretary and treasurer. The reunion in 1932 will be held at Findlay.

OIL TAX SUIT

WASHINGTON, D. C., Sept. 21.—A test case has been brought to the Supreme Court of the United States to determine whether the federal government should be permitted to tax profits derived by a private corporation from the sale of oil and gas produced under an Oklahoma oil lease. This is the case of Burnet against Coronado Oil & Gas Co. and it is said to involve annual taxes of approximately $12,000,000.—C. E. K.



Rerun Distillation Equipment

A Foster Wheeler rerun unit for processing pressed wax distillate, is illustrated. The equipment will handle 4,000 barrels per day. The products recovered to specification include gas oil, two neutral oil side streams and lube oil bottoms.

The complete unit includes fractionating tower, heat exchangers, and air preheater. The oil heater may be fired with oil or pulverized coal or coke, prepared by a Hardinge ball mill pulverizer.

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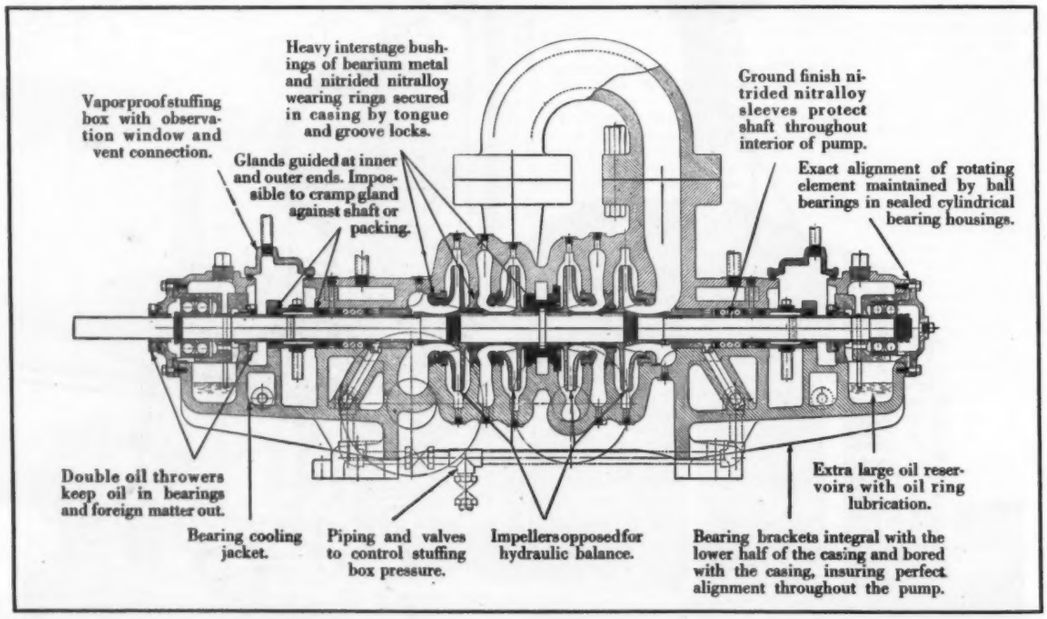
High Maintained Efficiency Is What Counts


Heavy interstage bushings of bearium metal and nitrided nitralloy wearing rings secured in casing by tongue and groove locks.
Vaporproof stuffing box with observation window and vent connection.
Glands guided at inner and outer ends. Impossible to cramp gland against shaft or packing.
Ground finish nitrided nitralloy sleeves protect shaft throughout interior of pump.
Exact alignment of rotating element maintained by ball bearings in sealed cylindrical bearing housings.
Double oil throwers keep oil in bearings and foreign matter out.
Extra large oil reservoirs with oil ring lubrication.
Bearing cooling jacket.
Piping and valves to control stuffing box pressure.
Impellers opposed for hydraulic balance.
Bearing brackets integral with the lower half of the casing and bored with the casing, insuring perfect alignment throughout the pump.

A few extra points of efficiency—what are they worth if they cannot be maintained over long periods of severe service?

Pipe line service is hard on centrifugal pumps. And the ability of any centrifugal pump to withstand wear and maintain its original efficiency should be carefully investigated before purchase is made.

Goulds Fig. 3360 Centrifugals are high efficiency pumps. And they have incorporated in them many features not found in other types—features that over 82 years of pump building experience have proven most effective in overcoming *wear. Wear decreases* efficiency and is costly to operation. Examine the sectional view of a Goulds Fig. 3360 Centrifugal and notice the following features—features that inherently make for longest life and maintained efficiency.

1. OPPOSED IMPELLERS. Eliminate balancing pistons and wear due to endwise movement of rotating element. Decreases dependence on thrust bearings with attendant mechanical losses.

2. IMPROVED STUFFING BOXES AND THROAT BUSHINGS. Throat bushing actually tested for horsepower loss by leakage and so designed that their loss is held at a minimum regardless of adjustment of glands. Glands are double guided—impossible to cramp packing causing wear on shaft sleeves and subsequent power loss.

3. DEFLECTOR WEARING RINGS. Guide leakage from wearing rings into stream flow with no increased loss in efficiency due to turbulence.

4. ALL WEARING PARTS of wear resisting materials are easily and inexpensively renewed when necessary.

Goulds Fig. 3360 Pumps are built for capacities up to 35,000 barrels per day, and Fig. 3365 of similar design for capacities up to 65,000 barrels per day. Designed and built for refinery and pipe line service. May we send you further details?

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CHICAGO PIPE LINE LARGEST GAS PROJECT

(Continued from Page 66)

at Fritch each of these auxiliary stations is supplied with this electric power for handling water, gas and lighting the plant. They are housed in separate buildings and complete in every detail.

The combined capacity of the 10 plants is 5,940-horsepower in the gas engines and each engine requires approximately 10 cubic feet of natural gas per brake horsepower hour. This gas is taken from the system and used without treatment of any kind as the gas is very low in sulphur content. The engines are of the very latest type and have been especially designed to operate in parallel so that all generators in each station can be turned into the same electric system on the grounds. The cylinders of the engines are water cooled.

The cooling system which makes it possible to put more gas into the line with the pressure constant may be outlined as follows: The gas is brought into the cooling tower header through a series of 24 pipe bends. From the header, lines, about 50 in number, take the gas into the cooling tower, where each line ends in a baffle arrangement which causes the gas in each of these lines to flow through hundreds of tiny pipes which are covered by water. The gas leaves the output side of the baffle box and returns to the main line manifold. Pipe bends are not required in the cooling tower output lines.

The refrigerating system brings the gas to much lower temperatures. In this process the gas is passed through tall upright heat exchangers. In the compartment surrounding the gas channel in these heat exchangers liquid propane is allowed to vaporize and thus most of the heat is taken from the gas.

New problems arose at nearly every step, both in regard to the construction plans and the final operation of the 923-mile high pressure line. The fact that at high pressures gases do not act in accordance with Boyle's law, so that the purchaser of gas delivered at high pressures will receive more gas than calculated, made it necessary to apply a correction factor for Weymouth's formula. The factor, to take care of what has come to be known as the "supercompressibility of gases," is closely dependent upon the composition of the gas. The composition of the gas which goes into the Continental Construction Co.'s line is variable and for this reason two control laboratories are operating at Fritch and at Joliet, Ill. The Fritch laboratory makes daily analysis of the gas, while the Joliet laboratory interests itself more in the properties of the gas and here daily tests are made with the calorimeter and other metering instruments. The Fritch laboratory is completely equipped and has the latest design of low temperature fractionation apparatus.

Built in One Year

The construction work on the project was started on August 22, 1930, and completed on August 5, 1931. The 923 miles of pipe are of the ordinary steel variety in spite of the greater stress caused by the 600 to 800 pounds pressure under which the line operates. Where the line is not welded it is joined with specially adapted Dresser couplings. These couplings are heavier than those ordinarily used and impart greater flexibility to the line. The welding on the line is 66 per cent electric and 34 per cent acetylene. With the exception of numerous river, creek, railroad and swamp crossings the construction work progressed without unusual difficulties.

Work on the following schedule will indicate the manner in which the project advanced to completion: Ninety days were allotted to the contractor for the construction of a 155-mile strip of the line. The contractor successfully carried out the assignment by using more than 100 tractors, trucks and ditching machines to handle the 50,000 tons of steel pipe and fittings required. Since the beginning of the work there have been nearly 40,000 different names on the payrolls of the builders, and at one time more than 7,000 men were at work on the line. The average depth of the ditch in which the pipe was laid is 5½ feet. The line, as it passes through the States of Texas, Oklahoma, Kansas, Nebraska, Iowa and Illinois, crosses 23 rivers, 12 creeks and 2 canals. At each railroad crossing the pipe is sealed in a steel casing which is vented at both ends and passed under the tracks.

At the major river crossings the line is divided and enters two headers from which six smaller lines are extended across the river and heavily anchored to the river bed. Such crossings were made at the Missouri and Mississippi Rivers. In bringing the line into Chicago the Calumet River crossing required a 530-foot tunnel, 10 feet in diameter, under the river. At various places quicksand was encountered and here the line had to be anchored down with heavy concrete blocks.

The cost of the natural gas line from Fritch to the south and west limits of Chicago is approximately $75,000,000, and the fixed annual charges of 15 per cent amount to more than $11,000,000. An additional cost of $1,650,000 applies to construction work in connection with the pipe line in the city of Chicago. Investments are those of Cities Service, the Insull interests, Standard Oil Co. of New Jersey, The Texas Corporation, Southwestern Development Co. and Columbian Carbon Co.

The compressor stations on the line are approximately 95 miles apart and their total horsepower amounts to 71,250. The stations are located near the following towns: Fritch, Tex.; Gray, Okla.; Bloom, Heizer and Glasco, Kans.; Beatrice, Neb.; Hastings, Truro and Harper, Iowa; and Geneseo, Ill.

In the operation of the line the average day consumption divided by the maximum day consumption gives the load factor. The operation of each of the 10 compressor stations is constantly controlled and instructions are given over the pipe line's own telephone system. Some 5,000 miles of wire are used over the 1,287 miles of telephone line. The requirements for the day are learned by the central station and here the orders to the various compressor stations are formulated and sent out over the telephone system. At present the quantity of gas leaving the line before reaching the Chicago terminal is negligible. Winterset and Indianola, Iowa, are taking gas from the line. Later on it is expected that at least 50 communities will be supplied with gas from the line.

Contractors on Line

With Fritch as the starting point the contractors who worked on the pipe line and the length of their schedule are: Sheehan Brothers, 74.9 miles; Bechtel & Kaiser, 140.2 miles; Ford, Bacon & Davis, 134.9 miles; Smith Brothers, Inc., 140 miles; Henry Lemons, Inc., 143 miles; Oklahoma Contracting Co., 100 miles; Ford, Bacon & Davis, 155 miles. The Missouri River crossing was made by Smith Brothers, Inc., and the Mississippi River crossing was made by Pacific Bridge Co. and J. F. Shea Co. The gathering system was constructed by Bechtel & Kaiser Co., and laterals were laid by Kelly Dempsey Co.

Compressor stations Nos. 1, 5 and 6 were built by George H. Siedhoff Construction Co.; compressor stations Nos. 2, 3, 4, 7 and 8 were built by Stearns Rogers Manufacturing Co., who also constructed the natural gasoline plant at Fritch. Lanning Construction Co. built the compressor station, cottages and regulator near Harper, Iowa. Priester Construction Co. built the compressor station near Geneseo, Ill. Cottages at the stations were built by the following: Peake & Landry Construction Co., W. W. Hill Construction Co., George P. Gehring Construction Co., and Randall Construction Co.

Line Divides at Joliet

At Joliet the main line divides into two 24-inch lines. One of these lines extends to the south limits of Chicago at One Hundred Thirty-eighth Street and Green Bay, and the other terminates at

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● This mighty monarch of the North comes from a locality where most animals would quickly perish. But cold and ice are to his liking. He thrives where others could never exist.

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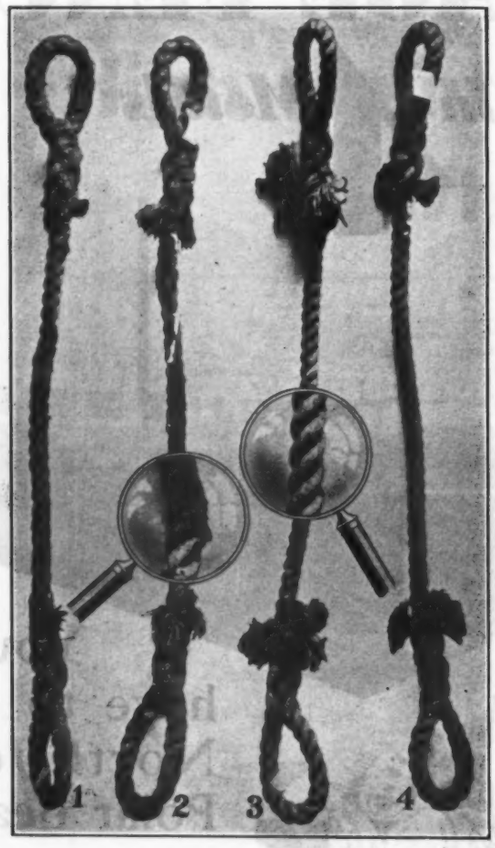
CHAIN LINK OR ORNAMENTAL WROUGHT IRON

The Six Months Sentence—



Will Your Rope Survive?

Look this picture over carefully—there's a lesson involved for every rope user. These four samples all 1½" diameter best quality Manila appeared as above after being buried for six months. When new, each specimen broke at over 17,500 pounds—after the exposure they tested as follows:

Samples 1 and 2—a treated rope offered as a substitute for "AMCO" broke at 350 and 500 pounds.

Samples 3 and 4—"AMCO" "ALL-WEATHER" Rotproof Manila broke at 12,300 and 13,800 pounds.

Is more conclusive proof required? Think of it—the imitative article lost 97% of its strength while "AMCO" the genuine Rotproof and Waterproof Cordage lost but 20%.

The *safest* and most *economical* Manila Cordage for every purpose is

AMCO ALL-WEATHER ROPE

St. Louis Cordage Mills

Eleventh and Soulard Sts. St. Louis, Mo.

Branch of

American Manufacturing Company

Noble and West Streets Brooklyn, N. Y.

You'll know "AMCO" by its dark brown color and GREEN marker yarn on the outside of one strand

the Crawford Avenue production and distribution plant of the Peoples Gas, Light & Coke Co. of Chicago. The 24-inch lines from Joliet were laid by Will-Cook Construction Co. This company takes the names of the two counties through which the line passes and was formed by the Peoples Gas, Light & Coke Co., Public Service Co. of Northern Illinois, and Western United Gas & Electric Co.

In Chicago the natural gas will be mixed with the artificial gas which the Peoples company manufactures to produce a blend with a B.t.u. content of 800. The artificial gas which has long been in use has a B.t.u. content of 530. The change from the lower to the higher B.t.u. gas is expected to be carried out without confusion to the consumer in view of the fact that the company introduced a change from volumetric to therm pricing in August of 1930 as authorized by the Illinois Commerce Commission. The customers will be billed for the number of therms (100,000 B.t.u.'s) used instead of the cubic feet. More than 2,000 employes have been working to adjust the 9,000,000 gas burners in Chicago to utilize the new fuel. As this article is being written one of the executives of the Peoples Gas, Light & Coke Co. is preparing an article for The Oil and Gas Journal which will cover in detail the reception of the natural gas in Chicago and the blending of it with the gas manufactured by the company. Equipment for mixing the natural gas with the artificial product has been installed at the south and west city terminals of the pipe line.

To the persistent rumor to the effect that Continental Construction Co. will be called upon to parallel the present line within the next year, the company has responded with emphatic denials. It is pointed out that the present capacity of the line can be increased from 175,000,000 feet of gas per day to 225,000,000 feet a day by stepping up the operating pressure to 800 pounds from 600 pounds. However, it is indicated that a move to this high pressure is not serious considered by officials in charge of operating the line. The line, according to engineers, is capable of delivering 400,000,000 feet of gas a day if operated at full force, but failures would result within a few hours.

As one official has said, the pipe line is ready and delivering 175,000,000 feet of gas a day, and it is now up to the consumers to decide for us whether that capacity is excessive, normal or inadequate. By the time it is discovered that the requirements of the territory exceed the maximum practical capacity of the line we will be able to talk more sensibly about new pipe line projects.

SYNTHETIC RUBBER FROM PETROLEUM

(Continued from Page 24)

overproduction following extensive planting of rubber trees and improved methods for gathering and curing latex.

Plants Yielding Rubber

An adequate supply of rubber is necessary to any country and in a crisis may be of vital importance. The United States with but little tropical lands suitable for cultivation of the rubber tree must look to some other source. For some time the Guayule shrub, yielding a large percentage of rubber, has been grown in Texas, Arizona and California, but, like the rubber trees, requires seven years to reach the yielding stage. Other rubber yielding plants are known and are receiving attention. The goldenrod experiments of Edison are often mentioned. An artificial source would be welcomed if it could meet economic conditions; however, this appears impossible, so we may consider the synthetic product important only to the extent of its possible influence on national affairs.

Rubber Molecule

The various plants recognized as a source of the rubber latex are to be regarded as manufacturing units, in which the elements necessary for the rubber molecule are separated from the plant food and air and then brought together or built up to form the latex. Just what this latex is we do not know. The chemist has torn rubber apart in many ways. One analysis is shown in the table:

COMPOSITION OF RUBBER

	Per cent	
	Found	Calculated for $C_{10}H_{16}$
Carbon	87.91	88.23
Hydrogen	11.86	11.76

While this gives us a starting point with the formula $C_{10}H_{16}$, it is clear that rubber is a complex colloid of very high molecular weight, probably being over 6,000, and consequently the substance is some multiple of $C_{10}H_{16}$, or $(C_{10}H_{16})_x$. It is the job of the chemist to experiment and reason out the way the carbon and hydrogen are combined. The chemist, Harries, has proposed an arrangement of the carbon and hydrogen groups as representing the fundamental molecule of rubber, which may be illustrated by:

$$\begin{array}{ccccccc} CH & & CH_2 & & CH_2 & C & CH_2 \\ \| & & & & & \| & \\ CH_2 & C & CH_2 & & CH_2 & CH & \end{array}$$

This is equivalent to two of the groups, $CH_2{:}C(CH_3)\,CH{:}CH_2$, representing the compound known as isoprene, or methyl butadiene. This may be obtained from certain resins, terpenes and hydrocarbons, or the raw materials turpentine, starch, coal tar and petroleum. It is known that isoprene after long standing will change to rubber.

Sunlight and Catalyst

Isoprene, or as it is called chemically, methyl butadiene, is closely related to butadiene, C_4H_6, $CH_2 = CH - CH = CH_2$. It has been assumed that butadienes are first formed in rubber plants and then polymerized under a moderate temperature, sunlight and the influence of some catalytic agent present in the cells of the plants. We do not know what takes place to produce butadiene from water, carbon dioxide, and such carbon and hydrogen that may enter the plant. It appears that rubber is not a direct product of water and carbon dioxide but is probably an indirect product forming first through the terpenes, terpene alcohols, cellulose, starches and sugars. We know that the green plants convert carbon dioxide and water into carbohydrates to build their structure. Chlorophyll, the green coloring matter of plants, is a possible catalyst. The intensity of light is important and appears to explain the successful cultivation of rubber in tropical countries where the action of sunlight is very potent.

Plant Chemistry

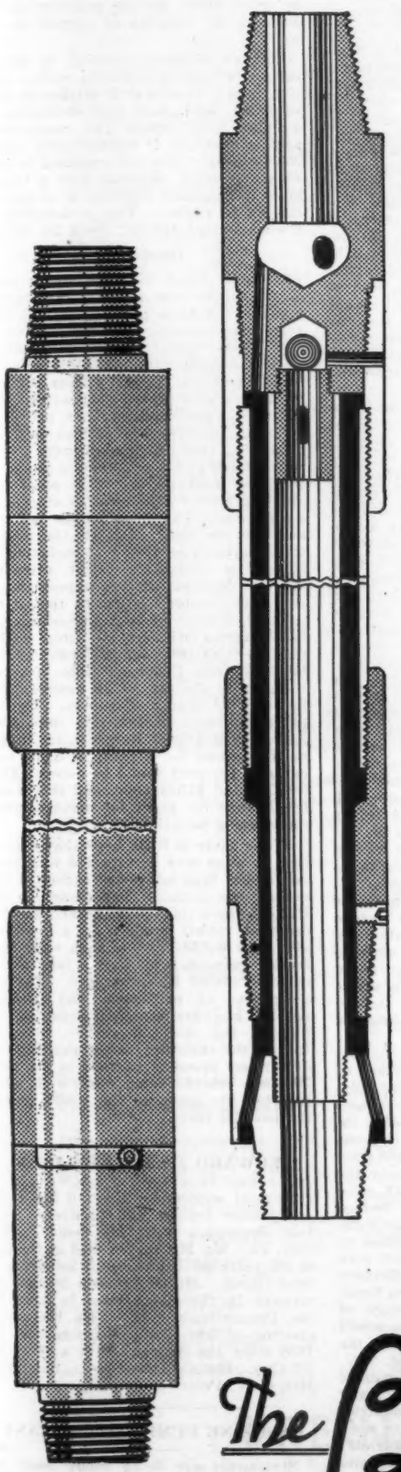
A living plant when placed in a jar containing carbon dioxide and water will produce oxygen; a simple statement of the reaction being $CO_2 + H_2O = O_2 + H.CHO$ (formaldehyde), but the actual change is more complex. A partial reduction of the carbon dioxide will produce the monoxide and oxygen: $CO_2 = CO + O$, and then $2CO + 2H_2 = CO_2 + CH_4$ (methane) and shows the possible starting point with the hydrocarbons. At any rate carbon monoxide, hydrogen and oxygen are produced from carbon dioxide and water; also, carbon dioxide and water will combine to form methane, which is convertible into water and formaldehyde. Fisher, working on the syntheses of the sugars, has shown that plants do change formaldehyde into fructose and finally to the starches. We may suppose all carbohydrates to have been formed through advancing steps, polymerizations, condensations, and reductions, from carbon dioxide and water through the catalytic action of chlorophyll and the sun's rays. The rubber yielding plants contain besides rubber, starches and sugars, or closely allied substances, suggesting that sugars may be the real source of the rubber latex. The oxidation of rubber yields levulinic aldehyde, which contains the radicle C_5H_9, a group similar to that found in the terpenes and starches.

Discoveries through X-ray that rubber is a "true jelly" of two "phases" were reported to the rubber division of the American Chemical Society at the Buffalo, N. Y., meeting, September 2, by Dr. Wheeler P. Davey and Marshall F. Acken of Pennsylvania State College.

Rubber is like a jelly made by heat-

Brewster Automatic Core Drill

Type "M" Bit Body



This automatic feature consists of a means of washing the inner barrel clean. The water is allowed to pass through this barrel until all foreign substances are washed out; when the operation of coring begins the ports in the inner barrel are automatically closed, allowing the fluid to pass around the inner barrel to the bit.

Another feature is the position of the valve in the top of the barrel, which is arranged to prevent the pressure from holding the ball down, so that in soft sand coring there is no resistance on the inner barrel, thus allowing soft sand cores to enter the barrel. A vent is provided to allow fluid and air to pass out of the inner barrel.

These features are very desirable and fill a long felt want where soft sand and other coring is necessary.

In either soft or hard formation a full recovery is assured. Made in all sizes and any length.

This barrel is equipped with split liners the same as Type C and Type M barrels.

Type "M" Cutter Head

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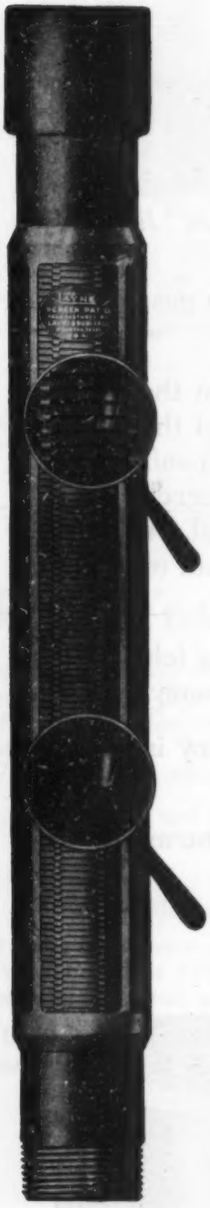

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Many years of actual field use in all kinds of formations have proven the correctness of Layne Screen design and construction. To hundreds of users, they have given more satisfactory performance. They have done away with screening problems, they have entirely eliminated sand cutting and clogging, and they have, in many instances, increased production.

The greater inlet area of the Milled Groove, and the Keystone Wire Wrap, are patented and exclusive features of the Layne Screen. They are responsible for the vastly improved performance, greater satisfaction and freedom from screening troubles that you get when a Layne Milled Groove Screen is installed.

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ing water with edible gelatine. The water corresponds to a fluid which the X-rays reveal in rubber while it is being stretched. This fluid is shown being squeezed out of the paths of the rubber fibers during stretching. The fibers are made of something corresponding to the gelatine. The two forms are named scientifically alpha and beta rubber and the Penn State work demonstrates for the first time the existence of the alpha (or fluid) rubber during stretching.

Hydrocarbons

Pentane, abundant in gasoline made from crude oil and also a product of the cracking stills, is a straight chain hydrocarbon, the composition of which is C_5H_{12}. From this it appears possible to obtain the group C_5H_8 or $CH_2.C.CH_2.CH_2.CH$, which appears in the fundamental rubber molecule of Harries, by treatment with acid according to the principles well established in sugar syntheses. The difficulty to be overcome is the separation from petroleum of immense quantities of pentane that will be required to build the complex molecule of 6,000 molecular weight by some kind of polymerization. Certainly such groups containing C, CH, CH_2 and CH_3 that the numerous investigators agree are necessary to the rubber molecule, are to be found in the hydrocarbons of petroleum.

Rubber Substitutes

A substance identical with natural rubber has never been made by artificial means. Crude rubber contains approximately 2 per cent resins and 2 to 6 per cent nitrogenous substances. What has been accomplished by synthesis is the production of a material that will serve for rubber to some extent, that is, a rubber substitute. The Bayer laboratories in Germany announced in 1909 that Hoffmann had made a product which equaled many of the properties of rubber. In 1912, Duisberg, representing the German government at the Eighth International Congress of Applied Chemistry, exhibited automobile tires made of synthetic rubber. However, when the needs of war were to be filled there was no workable process ready to turn out a supply of rubber. It is true that some kind of a substitute was manufactured, a rubber-like substance suitable for the manufacture of articles which are hard and without elasticity. Some tires were made with this substitute but these became brittle in cold weather. It may be that the impurities, possibly the resins and nitrogenous bodies, may have something to do with the elasticity of natural rubber.

Many of the syntheses which have for their object real rubber start with acetone and this is reduced to dimethylbutadiene, methyl isoprene, then efforts are made to combine this molecule into larger units, that is, by polymerization. This is where the great difficulty enters, and instead of the real article a rubber-like body is obtained.

The chemical preparation of rubber involves the isolation and purification of the parent hydrocarbon, then the polymerization of this substance. As has been indicated, the hydrocarbons suitable include the diolifines, butadiene, isoprene and methyl isoprene. When certain fractions of petroleum are treated under the conditions of the cracking still, some small percentages of these are formed and may be separated from the distillate. When these compounds are permitted to stand for several months in contact with metallic sodium, a rubber-like substance is formed. This substance has been found to be suitable for the manufacture of hard rubber articles, but the base would probably cost more than 10 times the present price of plantation rubber.

Two examples will serve to illustrate what has been done. There are many patents issued in the important countries of the world, most of which refer to some method for making the raw materials: Acetone, related alcohols, isoprene and the dienes.

Patented Processes

Heinemann, English Patent 21,772, issued in 1907, and the German Patent 44,828, October, 1908, describes the polymerization of isoprene: "This hydrocarbon, isoprene, contains two double bonds, and consequently polymerizes readily. This may be brought about, as is known, by heating in a sealed tube with or without the addition of acid, alkali or neutral catalysts. The temperature is preferably kept at 100° to 150° C. for three days; higher temperatures hasten polymerization, lower temperatures retard it. After polymerization a mass resembling rubber, but dissolved in the excess of the original hydrocarbon, or in an oily polymeride, is obtained. The hydrocarbon solvent can be separated by distillation, or the caoutchuoc formed may be precipitated by the ordinary means, such as the addition of alcohol or acetone."

Reynaud's process consists in absorbing turpentine in powdered rubber, then this mass is treated with batches of silute sulphuric acid, each one increasing in strength until finally the concentrated acid is used. It is finished with hydrochloric acid. The time required is from 18 to 20 days. Starting with a viscous mass it gradually solidifies to a product similar to rubber. This is described in French Patent 419,860, April 23, 1910.

Possibilities

Acetone, which has been shown to be an important raw material for starting a rubber synthesis, may be obtained from petroleum, especially through the oxidation of the higher alcohols. Butadiene, a rubber substitute, has been produced from petroleum, especially from products of the cracking process. However, these substances are obtained from petroleum in small quantities and at high cost. Remembering that the price of crude rubber recently fell to below 5 cents a pound on the New York market, it is plain that any synthesis would have to start with an abundant supply of cheap material and the operating costs of the process would have to be very low, including facilities for sodium treatment, extending over the long period that appears necessary. It has been estimated that if the rubber-like compounds of petroleum could be converted without loss into rubber that 1,000,000,000 pounds of rubber could be made from 13,000,000 bbls. of petroleum, or at the rate of 39 pounds of oil to make 10 pounds of rubber. The expense, however, makes this impossible. According to Doctor Burgdorf, the investment required for a plant of 3,000 tons capacity per year would be between $10,000,000 and $15,000,000, and this would not include the plant for manufacturing the starting material.

While there is little hope that a practical solution may be expected very soon, yet, as has been mentioned earlier in this article, the strategic importance to the United States of the manufacture of a desirable rubber product on a considerable scale would prove of such value that further research, even over a long period of time, should be encouraged. The hydrocarbons of petroleum, and possibly natural gas, are especially adapted for forming the essential rubber molecule. Indeed, the chemistry of the paraffin hydrocarbons promises to yield in the next 50 years returns comparable with what coal tar has given to the world during the past 50 years.

EDWARD McCRACKEN DIES

Funeral services for Edward McCracken, pioneer refiner and producer, were held September 8 at his home in Oil City, Pa. Mr. McCracken died at the age of 88 years on September 5 following a brief illness. Mr. McCracken became interested in the oil business in 1864 in the Pennsylvania fields. He became a director of the Penn Refining Co. in 1886 when the company built a plant at Oil City. He is survived by his daughter, Mrs. C. V. Peters of Oil City.

GASOLINE PUMPS IN GERMANY

Statements are being freely made in German trade circles that the number of retail gasoline pumps in Germany is much too large. The present total is about 50,000, which sell about 1,200,000,000 liters per annum. To every three miles of main roads, and to every 15 motor cars and 13 motor cycles there is one pump. The average delivery per pump is not more than 65 liters daily, valued at 24.7 marks.

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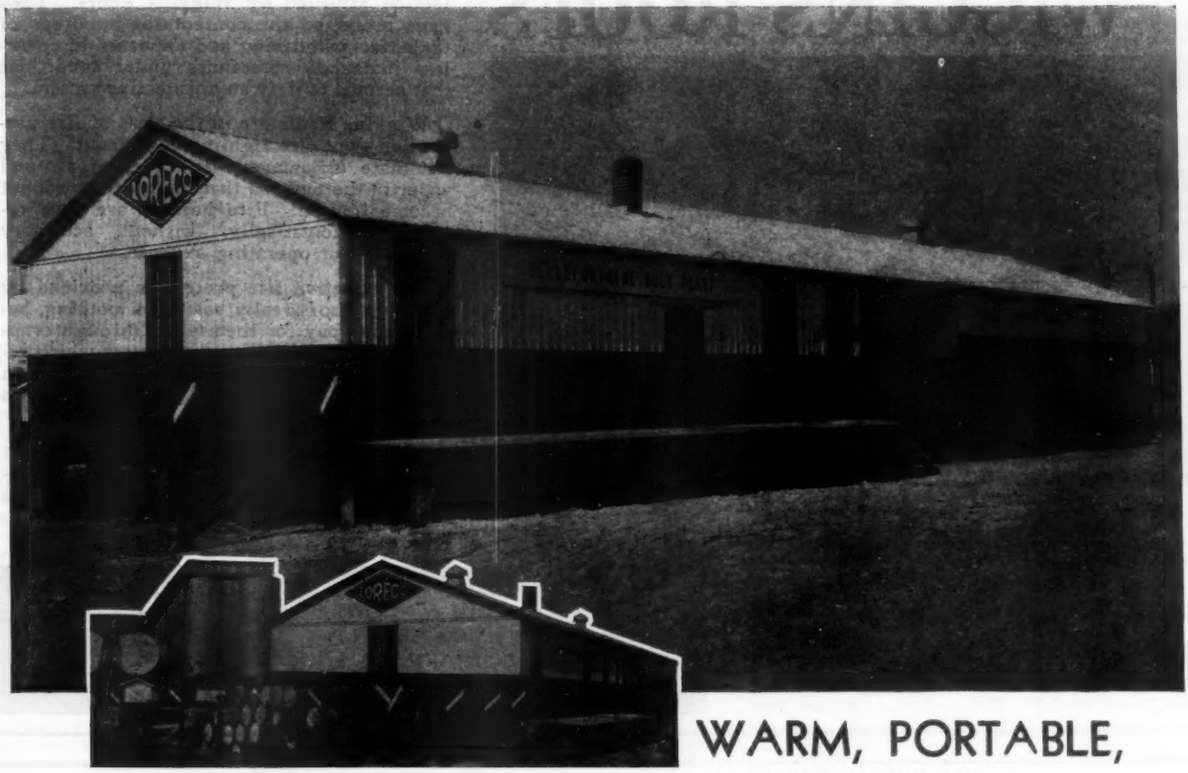

The wide spread use of IDECO steel buildings in the distribution field of the oil industry is the best possible proof of their fire resisting qualities.

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Drilling and Pumping Equipment
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MOBILE bulk station plants enable you to take advantage of market changes.

Insulated IDECO bulk plant buildings give you the same protection against heat or cold as brick or masonry construction, yet they retain all of the mobile features of sectional construction. Strong, easily erected and dismantled they can be moved or altered at will to meet changing requirements.

IDECO lockjoint sheeting makes them attractive in appearance and completely weather tight. With hot dip galvanized steel frames, trusses, sash and hardware, they are completely guarded against rust and corrosion. No other steel building gives you this complete protection.

Used for practically every type of industrial building they will meet your particular needs. If you want still further information, write for our standard building catalog.

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Dallin Aerial Surveys, Philadelphia.

THE record of the past 8 years in oil fields all over the world is convincing proof of the high degree of fire protection afforded by Wiggins Roofs. They have protected the contents of hundreds of tanks from lightning and exposure in countless instances—sometimes under conditions that seemed to defy any protective system.

Wiggins Roofs are in the class of fire prevention—not fire fighting equipment. They eliminate inflammable mixtures of air and vapor in the tank, so that the contents cannot become ignited. Fire hazards are thus removed automatically, without accessory equipment or operating expense.

The effective fire protection provided by Wiggins Roofs really costs you nothing, because they pay for themselves through evaporation savings. The very features which reduce fire hazards also reduce evaporation losses—both gravity and volumetric—to a practical minimum.

Our nearest office will be glad to furnish you with fire and evaporation data, also estimates on equipping your tanks with Wiggins Roofs.

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Atlanta El Paso Salt Lake City Los Angeles Seattle

CENTRAL WEST FIELDS

(Continued from Page 55)

C. Wheatley farm, Sections 27-28, and Bradfield & Hardwick made a location on the F. and J. Brukhart farm, Section 32, same township. Kaller and others are drilling No. 4 F. and N. Rossiter farm, Section 35, same township. Central Gas Co. abandoned its No. 1 H. B. and R. E. Mann farm at a depth of 250 feet.

In Meigs County, Bedford Township, the Ohio Fuel Gas Co. has a good gas well in No. 1-5532 Mollie Custard, Section 6, the gas being found in the Maxon sand at 1,081 feet.

INDIANA

Just at this time the southern and southwestern portion of Indiana from Princeton to the Kentucky line is looking up after years of a few tests, as new developments have made a large area in that part of the State look inviting to operators for either oil or gas. After waiting nearly three years Perry County in the extreme southern part of Indiana seems to be entering upon a new era of oil development with talk of building a 15-mile pipe line to the Bristow Field and the erection of a refinery near Troy.

A lease on 10 acres of ground just west of Maxwell, near the mouth of Anderson Creek, a spot made famous by the fact that Abraham Lincoln operated a ferry there, was signed by Stinson Brothers of Owensboro, Ky., and a contract was closed by them for all the oil now produced in the Troy Field at the Owensboro posted price. Just across the highway Fred Conyers and associates are said to have acquired a tract along the Ohio River on which they plan to erect 15,000 to 20,000 bbls. of storage which they expect to connect with a pipe line to their production near Bristow, in the northern part of the county. It is understood Mr. Conyers estimates his flush production between 1,000 and 1,500 bbls., but no definite idea can be gained as to the amount actually available because little opportunity has been had for continuous pumping of the producing wells now hooked to the power. It is said Mr. Conyers is associated with one or two Evansville capitalists who have fleets of boats and are contemplating barging their Bristow oil to Louisville, where an independent refinery is bidding $1.02 per barrel for Perry County oil which is desirable for blending with other oil. Mr. Conyers believes he can put his oil into Louisville for about 10 cents a barrel, a figure even below the usual pipe line charge, which averages around 20 cents a barrel for about the same distance. Mr. Conyers is demonstrating his faith in the future of Perry County by inaugurating a new drilling campaign, having already let a contract for five wells, the first of which has been spudded in as No. 4 Lee Aders farm, about 400 feet east of No. 3 which is rated at 50 bbls. flush.

The firm of Stinson Brothers is composed of three young men—products of the Scottsville oil field, in Allen County, Kentucky, who emigrated to Owensboro several years ago, and fell into some good production. They now own several strings of tools, have been very active in all phases of the oil business and during the past six months have been operating a small skimming plant on one of their leases where they refine their own production.

There are now about 18 producing wells around Troy, totaling probably 100 to 125 bbls. daily, which have been idle since the Stoll Refining Co. became interested in the Hart County Field and discontinued the purchase of Perry County oil. Stinson Brothers figure that by saving the 40-cent Louisville freight rate they can pay the producer Owensboro prices, and at the same time have a liberal operating margin. The citizens of Troy, Tell City and Cannelton have pledged support to a home-owned refinery. The installation will be of the simplest and most inexpensive type and so arranged that its capacity can be enlarged at a minimum cost and construction work will start immediately. A 2-inch line already extends from Troy to the field, hence no delay or expense will be necessary in bringing the oil to the plant.

Deep Test at Tobinsport

Lane and others of Portland, Me., are drilling at 1,400 feet on their deep test at Tobinsport, on the Ohio River opposite the oil and gas field at Cloverport, Ky. Same parties are setting casing at 320 feet on the Lanman lease, 1 mile south of Bristow. They have a large block of leases there and expect to drill several tests on their holdings. Paul Ames has spudded in a second well on his block of acreage near Troy, and will drill three wells to test the structure which is thought to extend in a northerly direction from the original Troy Pool opened a few years ago by the Packard Oil Co. Doctor Wathers and associates are shut down at 1,430 feet on their deep test on Edward Cassidy farm, 4 miles southeast of the Bristow Field. Geologists estimate the New Albany shale is only a few feet below bottom of the hole and the drilling will be carried through the Corniferous.

A syndicate composed of E. H. Bettinger, W. Eckley and Chris Zoercher of Tell City, and J. H. McClurkin of Owensboro, Ky., have closed a deal with H. C. Darby of Princeton, and George Cornelius of Indianapolis for a test on a block of acreage on the big structure at Derby, in the eastern part of Perry County. The test will be carried to the Corniferous unless production is found in the Owensboro sands overlying the Chattanooga shale.

The Derby structure has already received considerable publicity as its existence has been known for several years. It was first brought to attention of geologists by Dr. C. A. Malott of the Bloomington, Indiana, University, geological department, who ran across it while mapping Perry County, with a corps of summer students. It is now known to extend into Breckenridge and Meade Counties in Kentucky, and these parties have a large area under lease on its eastern flank and will drill one or more deep tests across the Ohio River. An old well at Mooleyville is some 1,100 feet deep, but did not reach the Chattanooga shale, but is said to have had several good showings in lower Owensboro sands. The Kentucky portion of the structure was mapped by John H. McClurkin who also made a plane table map of the roads, creeks and farm lines, which was used by the geologists in determining the character of the structure. In addition to the deep tests the syndicate is arranging for one or more shallow wells to the northwest of Derby where the Barlow said is thought to be about 450 feet deep.

Alma Glenn and associates, of Evansville, are moving a rig into the Gerald vicinity, about 3 miles west of Derby for a Barlow test. Charles Dice, formerly of Scottsville, Ky., is the contractor. J. H. McClurkin has moved a rig to the A. V. Doogs farm, in the SE, Section 2, and about 1½ miles northeast of the Bristow production. The Missouri-Kansas Pipe Line Co., the Wood Oil Co., Potter Palmer Syndicate, Chester Oil Co., and the Cumberland Petroleum Co. have leases surrounding the Doogs farm.

Frank Waters, of Bloomington, representing a syndicate of business men in southern Indiana, has contracted for a well on the John F. Kaufman farm, a mile northeast of wells owned by Conyers and others of Bristow.

In southwestern Indiana, and in Busseron Township, Knox County, James H. Gardner is drilling a test 660 feet from the north and west lines of the E. W. House farm, NE, Section 16, and is also drilling a test 660 feet from the north and east lines of the M. E. Bond, SW, Section 14, same township.

Eureka Gas & Oil Corp. found a dry hole on the Sally Harmon farm, NW, Section 25, Washington Township, Pike County, at a depth of 1,185 feet. James E. Young is drilling in the southeast corner of the Bed McCord farm, SE, Section 23, same township.

The Old Dominion Corp. reports a gas well on the Walter Suphin farm, NW, Section 9, Washington Township, Greene County at a depth of 2,000 feet.

ILLINOIS

No new completions were reported from any of the numerous Illinois fields, the only report being of wells abandoned. In the Dupo Field, of Sugar Loaf Township, St. Clair County, south of East St. Louis, James C. Ellis, of Owensboro, Ky., abandoned the following wells: Nos. 1, 2, 3 and 4 H. Mousette farm, NE, Section 28, as well as returning the lease to the owner; Nos. 1 and 2 Margaret A. LaCroix, same section; Nos. 1, 2 and 3 A. Dettenbach, same section; and Nos. 2 and 3 Charles H. LaCroix, NE, Section 28.

C. Roques abandoned No. 1 E. Showman farm, Section 22, Sugar Loaf Township, St. Clair County, also No. 1 F. Phelps, same township.

No report has been given out in reference to the test being drilled by the Duncan Machine & Foundry Co. on the H. Woolbridge farm, Section 23, Dorchester Township, Macoupin County, since the well was reported to a depth of 1,840 feet.

Another well that on last report had reached a depth of 1,617 feet, is being drilled by the Bryan Lee Petroleum Co. on the William Langewich farm, Section 4, Centralia Township, Marion County.

Phillips Petroleum Co.'s test on the W. R. Moss farm, Section 24, Elk Prairie Township, Jefferson County, was last reported at a depth of 1,300 feet, and several other tests in various counties are reported idle at this time.

A test is reported drilling by the Northern Indiana Oil & Gas Co., on the Mrs. Elizabeth Taylor farm, 8 miles southwest of the town of Belvedere. Two wells are drilling in Prairie Township, Crawford County, in the old fields, and two wells drilled in Casey Township, Clark County; one in Coles County, and one in Edgar County.

KENTUCKY

One of the important developments in the Owensboro or Tri-County Field was the completion of a wildcat well by White, White & Calderwood on the Westerfield 60 acres, which produced 25 bbls. from the Jett sand which was topped at 656 feet and drilled to a total depth of 683 feet. This well is 15 miles south of Owensboro on the Hartford Road and 3 miles east of Huletts Store on the Boston Road. This well opens up what is called an entirely new pool, the nearest production being 1½ miles away. No. 2 has been started on the same farm. Every farm for miles around has been taken under lease and the time is not far away when great activity will be seen in that area of Ohio County.

Crouse and others report a dry hole on the Less Evans farm, in the Hones Pool, of Daviess County.

The Owensboro Messenger-Inquirer has this to say of the Sebree Field in Webster County: "Purchase by the Security Oil & Gas Co., of Oklahoma City, of large leaseholdings in this territory and notices by that company that it will begin immediately the erection of an oil refinery near Evansville, Ind., to which oil here will be barged on Green River, strikes an optimistic note. Already a right of way has been secured and a pipe line will be laid to Green River through which oil from this field will be marketed."

Today's gas wells are found in three sectors. One is north of Sebree along the Henderson and Webster Counties border. The other is a few miles south, a short distance beyond the old Sebree Springs property. Toward the west a few miles is another community where a few wells have been brought in. This is not the first time that development of the gas and oil fields near the Sebree Springs was undertaken, as a gas well more than 2,000 feet deep was sunk in 1914-15, in which showings of both gas and oil were found.

Pipe Line Runs

The runs of the Cumberland Pipe Line Co., Inc., in the eastern Kentucky fields for the month of August amounted to 146,239.07 bbls.

MICHIGAN

No new completions were reported for the week from the Central Michigan fields, although a couple of wells are nearing the pay sand in the Woods Pool, between Mount Pleasant and Clare, in Vernon Township, Isabella County, and at least two are about due to drill in in the new East Field, in Greendale Townhsip, Midland County.

In the western part of Wayne County, in the southeastern part of the State, three new shallow wells have been drilled by G. E. LeVeque for gas. No. 1 Traskos farm, N half NE SE, Section 33. LeVeque brought in a gas well at a depth of 64 feet that shows 510,000 feet, and has another now drilling on the same farm, along the Bellville in Van Buren Township. Same party drilled in a gas well in No. 1 on the James Ollett farm, NW SE, same section, at 84 feet, with 110,000 feet, and is drilling No. 2 same farm. Same party's No. 1 Riggs farm, NE SW, Section 34, Van Buren Township, is reported dry, water being found in quantities.

EASTERN FIELDS

(Continued from Page 55)

deeper and are at 3,215 feet and it is about due in the sand. In Center Township J. B. Orndoff has reached 3,018 feet on the J. E. Scott farm. H. D. Freeland & Co. have resumed drilling on the D. T. Freeland farm in Wayne district, and the hole is now 800 feet deep.

Drilling in West Virginia

In Kanawha County the Pure Oil Co. is rigged up for No. 254 on the William Coal Co. tract and is moving in materials for its No. 255, both in Cabin Creek district. Godfrey L. Cabot is rigging up for No. 23 on the Quincy Coal Co. lease, and in the same district the Winifrede Co. is down to 1,260 feet in No. 17 on its own property. In Elk district the same company has reached 1,610 feet on the J. A. Thomas farm, and on the W. A. Bradford farm, same section, is drilling at 1,460 feet. In Union district Ellyson and Wilson have started their test on the Virgil C. Tate farm and have reached 540 feet.

New Operations

Among the new operations, Estep, Bland and others are rigging up on the George C. Barker farm in Chapmansville district, Logan County. In Union district, Lincoln County, the Woodyal Gas Co. is moving in the material to drill a second test on the Thomas Burns farm. In Sherman district, Boone County, No. 49 and 50 of Godfrey L. Cabot on the Federal Coal Co. tract have both been spudded in and drilling started. In Butler district, Wayne County, the Chartiers Oil Co. is spudding in on the Freeland Yates farm.

In Ritchie County the Hoover Oil Co. is rigging up on the C. G. Bradley farm in Grant district. In Williams district, Wood County, the Plum Run Oil Co. is down 50 feet in starting its second well on the Francis Delaney farm. In the same section Warren Brothers are reaming at 700 feet on the J. W. Reed farm and Crawley and Carr are down to 1,300 feet on the Mary J. Duke farm. In Union district, Wood County, Robert Elder and others have made a location on the William Wilson farm.

In Gilmer County, McCall & Co. have reached 390 feet in their No. 3 on the Fletcher H. Stout farm, Center district, and in the same district the Chartiers Oil Co. has started drilling its No. 4 on the G. D. Stump farm. In Putnam County, the Putnam Natural Gas Co. is rigging up to drill No. 1 on the Rachel H. West farm in Scott district deeper into the sand. In Harrison County, the Reserve Gas Co. is past the 2,300-foot level in a second well on the Enoch Post farm in Union district. In Coal district, the Washington Gas Co. is at present shut down at 2,374 feet in drilling its old test well on the E. D. Fittro deeper. In Eagle district, the Delaware Gas Co. remains shut down at 2,400 feet in its second test on the Reynolds heirs farm.

In Monongalia County the West Penn Gas Corp. is moving in a rig on the Charlie Taylor farm in Battelle district. In Clay district, the test of the Pedlar Run Oil Co. remains shut down at 2,570 feet on the Lewis R. Hess farm.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 45)

LA SALLE PARISH

Gulf Ref. Co.'s No. 1 Tremont Lbr. Co., 668 ft. N, 632 ft. E, SW cor., Sec. 10-9n-2e ..... Drlg 2,704 ft., hard gray sand.

NATCHITOCHES PARISH

Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10 ... S.D. 1,518 ft.
C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10 ..... Tested dry; S.D. 1,380 ft.

OUACHITA PARISH

Wilson & Mitchell No. 1 Williams, Sec. 5-16-1e, 330 ft. E, 240 ft S, NW cor. SW SE ..... Location.

RAPIDES PARISH

Pelican Nat. Gas Co.'s No. 1 Long Bell Lbr. Co., 330 ft. N and E, SW cor., Sec. 3-1n-3w ..... Dry and abnd. 3,588 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11 ..... Spudded in; S.D. 50 ft.
Mack Jourden Co.'s No. 1 Lockett, 4,035 ft. S, 1,080 ft. E, NW cor. SW, Sec. 29, in Sec. 32-13-10 ..... S.D. 2,550 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Derrick.
National Gas Co.'s No. 1 Singletary, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18n-7e ..... Sidetracking 120 ft., D.S. 2,515 ft.
Richland Operating Co.'s No. 1 Baremore, 730 ft. S, 950 ft. E, NW cor., Sec. 19-16n-7e ..... Reaming to set liner 2,409 ft.
Southern Carbon Co.'s No. 1-B C. M. Noble, 3,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6 .. Location.

SABINE PARISH

W. M. Coates' No. 1 Stille, 330 ft. N, 660 ft. W, SE cor., Sec. 35-8-13 ..... Location.
W. M. Coates' No. 1 Towery, NE cor. SE SW, Sec. 1-7-13 .. Coring 2,000 ft.
Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11 ..... S.D. 105 ft.
R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S, 200 ft .W, NE cor. NW NW, Sec. 10-8-13 ..... S.D.W.O. 3,637 ft.
R. L. Gay, tr.'s No. 10 Bowman-Hicks, 330 ft. S. and E, NW cor. SW SW, Sec. 18-7-13 ..... Rigging up.
Langbridge Oil Co.'s No. 1 Stephens, 330 ft. N and E, SW cor. SE NE, Sec. 17-9-11 ..... Tested 480 ft. oil 3,350-3,506 ft.
T. M. LeGrand's No. 1 Peterson, 330 ft. N and E of C, Sec. 34-7-13 ..... Rigging up.
J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-13 ... Set 8-in. 1,590 ft.
A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor. NE SE, Sec. 8-8-13 ..... S.D. for wtr. 1,200 ft.

TENSAS PARISH

U. A. Duvall et al's No. 1 Martin Jacob, 150 ft. S, 150 ft. W, NE cor., Sec. 1-14-11e ..... S.D. for fuel 1,760 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... S.D. 3,545 ft.

UNION PARISH

Dan Brooks' No. 1 Odus Douglas, 330 ft. S and E, NW cor. NE SW, Sec. 9-22-3 ..... S.D. 3,509 ft.

VERNON PARISH

Exchange Petroleum Co.'s No. 1 White & Grandin, Sec. 29-3n-7w, 1,980 ft. E, 1,430 ft. N, SW cor. Sec. ..... Began Sept. 14; set 12½-in. 200 ft.

ARKANSAS

CHICOT COUNTY

R. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 21-23-3 ..... T.A. 2,925 ft.

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenweider, Rhea & Kitchen, Sec. 13-17-22 ..... S.D. 804 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-3 ..... S.D. 1,252 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12w ... Rigged up and S.D.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... S.D. 3,740 ft.

CRAWFORD COUNTY

Ozark Nat. Gas. Co.'s No. 1 Hammond, C SE SE, Sec. 29-10-29 ..... Location.

DALLAS COUNTY

E. C. Brewer's No. 1 W. E. Hillman, 330 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-13 ..... S.D.; W.O. 2,869 ft.
J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NE, Sec. 11-9-15 ..... S.D. funds 2,520 ft.
Zepp O. & G. Co.'s No. 2 Hillman, 450 ft. E, 340 ft. S, NW cor. SE NE, Sec. 10-20-13 ..... Shale 2,111 ft.

DREW COUNTY

Co-Operative Dev. Co.'s No. 1 R. L. Hardy, SW cor. NE NE, Sec. 6-12-7 ..... Dry and abnd. 1,931 ft.

HOT SPRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... S.D. 1,300 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 200 ft. W, NE cor. NE SW, Sec. 5-8-7 ..... Fishing D.S. 2,800 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-19 ..... Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D.; W. O. 3,570 ft.

MILLER COUNTY

W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27 ..... S.D. 1,955 ft.

OUACHITA COUNTY

Bolin & McLeon's No. 1 L. D. Nealy, 150 ft. S, 150 ft. W, NE cor. SE SW, Sec. 25-16-15 ..... S.D. 2,036 ft.
Copenhaven et al's No. 2 Berg, C SE SE, Sec. 13-15-17 ... S.D. 330 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 28-8-14 ..... T.A. 2,909 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... S.D.; W.O. 1,020 ft.
E. R. Henderson's No. 1 W. B. East, 200 ft. S, 150 ft. W, NE cor., Sec. 13-9-23 ..... Arranging to set 8-in. to cut off wtr. 333 ft.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D.; T.D. 1,436 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29 ..... S.D.; waiting on csg. 1,860 ft.

UNION COUNTY

Chapman & Wilson's No. 1 A. H. Hadley, 330 ft. N, 330 ft. E, SW cor. NE SW, Sec. 3-13-13 ..... 600 ft. fluid 30% S.W. in hole; T.A. 3,570 ft.
Drillers Oil & Dev. Co.'s No. 1 Pickering, 220 ft. N, 668 ft. E, SW cor. NW NE, Sec. 1-17-16 ..... Rigging up.

WASHINGTON COUNTY
(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 24-16-30 ..... S.D. for funds 1,795 ft.

YELL COUNTY
(Cable tools)

Tegmeir & Luckett's No. 1 Falcon, Sec. 36-7-21 ..... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Hindeman & Ball's No. 1 Merritt (was Maud-Redwater Oil Co.'s), 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur. ..... Drlg. 3,040 ft.
Logan & Elliott's No. 1 Smith, 9,600 ft. S, 2,500 ft. W, NE cor. Chas. Lewis Sur. ..... Drlg. 3,604 ft.
Tarkington & Jones' No. 1 W. W. Whybark, 200 ft. S, 200 ft. W, SW cor. J. H. Dyer Sur. ..... S.D. 30 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 665 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 3,000 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr. in J. H. Murphy Sur. ..... S.D. 3,600 ft.

CASS COUNTY

J. F. Morrison's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur. ..... Drlg. sandy shale 3,647 ft.
Davis & Pigg's No. 1 Roy Brian, SW cor. Roy Bryan 88-ac. tr., Albert H. Latimer Sur. ..... S.D. 3,055 ft.
Everets Drlg. Co.'s No. 1 H. W. Whittington, 200 ft. S, and W, NE cor. 69-ac. Whittington tr., L. Strong Sur. ..... S.D. 3,922 ft.; waiting on D.S.
Geo. McKamie's No. 1 R. E. Hall, 150 ft. N, 150 ft. W, SE cor. Hall's 117-ac. tr., H. Buckler Sur. ..... S.D. 4,195 ft.
C. E. Murdock's No. 1 First National Bank, Evans Watson Sur. ..... S.D. 4,390 ft.
John Nelson's No. 1 T. A. Irvin, 200 ft. S and E, NW cor. McNary Harris Sur. ..... Dry and abd. 3,738 ft.
Olds & Smith's No. 1 Athens, 3,056 ft. W-E line, 856 ft. S-N line, J. C. Byers Sur. ..... Washing to bottom 3,075 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. .... S.D. 2,280 ft.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur. ..... S.D. 955 ft.
United North & South Co.'s No. 1-A Nickelberry, W. A. Irvin Sur., 300 ft. S and E, NW cor., Nickelberry 50-ac. tr. ..... Rigging up.

HARRISON COUNTY

Gholson et al's No. 1 Bivins Farm Co., on J. K. Bivins, Jr.'s 320-ac. tr., Thos. Toby Sur. ..... S.D. 3,085 ft.
Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. from N line to 250 ft. from E line of 105-ac. tr., Findley Sur. ..... S.D. lime 2,970 ft.
O. H. Parkening's No. 1 T. J. Taylor, C, Blk. 32, W. H. Payne Sur. ..... S.D. 2,530 ft.
Ryan Consolidated Pet. Corp.'s No. 1 J. M. Fuhr, 1,300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur. ..... Derrick.
Thomas & Kinsey's No. 1 J. R. Watson, Thos. Iden Sur... Set 15½-in. at 260 ft.; drlg. 980 ft.

MARION COUNTY

Gist, Claunch & Dodson's No. 1 Miller, 1,470 ft. E line, 725 ft. N line, SW cor. H. Fulgran H.R. Sur. ..... S.D. 300 ft.
Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. 2,380 ft.

PANOLA COUNTY

Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur. ..... Derrick.
Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur. .. Spudded and S.D.
G. A. Davidson's No. 1 Latham, Wm. Rich Sur. ..... S.D.; changing to heavy rig 550 ft.
J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in Jas. Hanks Sur. ..... S.D. 1,500 ft.; laying wtr. line.
United Gas Public Service Co. No. 11 Werner, 1,162 ft. N, 2,418 ft. W, SE cor. D. B. Lewis Sur. ..... Drlg lime 2,900 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. .... S.D. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. .... S.D. 2,280 ft.

SHELBY COUNTY

I. M. Bradley's No. 1 Ashberry (no check), G. W. Mitchell Sur. ..... S.D. 3,380 ft.
E. L. Chapman's No. 1 Pickering Lbr. Co., C. E. Henry (headright) ..... Reaming to bottom at 3,300 ft.; T.D. 3,864 ft.
Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur. ... S.D. 3,127 ft.
K. H. Francis' No. 1 John Mims, Mary Smith Sur. ..... Drlg. 2,805 ft.
H. P. Glidden's No. 1 Pickering Lbr. Co., Jonas Harrison Sur., 300 ft. E of NW cor., 150 ft. S of N line at right angles Pickering 59-ac. tr. ..... T.A. 3,854 ft.
H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E, SW cor. J. A. Morris' 109-ac. tr., Wm. English Sur. ..... S.D. 2,600 ft.
T. A. Martin's No. 1 J. B. Bush, S 8 degrees E, 2,000 ft. from NW cor. J. B. Bush's 77-ac. tr., thence E at right angles to said line 200 ft., Alfred Lindsey Sur. ..... Derrick.
Henry Maulding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... Drlg. 3,055 ft.
McRoby et al's No. 1 Windham, Wm. Leach Sur., on Windham 296-ac. tr. ..... Set 12½-in. at 276 ft.; drlg 2,054 ft.
Geo. N. Pace's No. 1 E. H. Powers, western J. Timms Sur., 150 ft. E of W line, 200 ft. N of S line, Powers 126-ac. tr. ..... Derrick.
Ridgeway et al's No. 1 Polley, Domingo Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr. ..... S.D. waiting on csg. 405 ft.
Schultz et al's No. 1 Hughes, 150 ft. SW cor. Hughes' 110-ac. tr., J. Clay Sur. ..... D.S. stuck; T.D. 4,195 ft.
A. D. Smith's No. 1 Y. D. Carroll-J. A. Parker Sur., 1,500 ft. N, 300 ft. W, SE cor. J. A. Carroll Sur. ... Drlg. 3,150 ft.
C. H. Tautenhahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E. NW cor, J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft.; waiting on D.S.
Tenant et al's No. 1 J. Henry, C. Z. Walker Sur. ..... Fishing for D.S. 3,457 ft.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 45)

SABINE PARISH—ZWOLLE

Roy Baker's No. 1 Sabine Lbr. Co., Sec. 1-7-12 ..... W.O.S.R. 2,548 ft.
W. M. Coates' No. 1 Bowman-Hicks, 330 ft. S and W, C, Sec. 2-7-12 ..... W.O.S.R. 2,441 ft.
W. M. Coates' No. 5 Sabine Lbr. Co., 150 ft. N and E, SW cor. NW NW, Sec. 1-7-12 ..... Rigging up.
Hawkins et al's No. 1 Moran, Sec. 1-7-11 ..... 400 ft. oil in hole 2,620 ft.; W.O. S.R.
O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-12 ..... S.D.W.O. 2,532 ft.
Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11 ..... W.O.S.R. 2,609 ft.
Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11 ..... S.D. 1,625 ft.
Lanier & Dyer's No. 1 Barthold, 335 ft. N, 525 ft. E, SW cor. SE NE, Sec. 35-8-12 ..... Tested dry, W.O. 2,521 ft.
Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11 ..... S.D. 1,606 ft.
Loring Oil Co.'s No. 18 Bowman-Hicks, 1,280 ft. S, 275 ft. E, NW cor. SW NW, Sec. 15-7-12 ..... Coring 2,306 ft.
Loring Oil Co.'s No. 19 Bowman-Hicks, 1,475 ft. W, 75 ft. S, NE cor. SW NE, Sec. 16-7-12 ..... Rigging up.
Lyons & Neely's No. 1 Duggan, NW SE, Sec. 14-7-11 .. Location.
L. K. McGuffin's No. 1 Bush, NW cor. NW SE, Sec. 1-7-11 ..... S.D. 400 ft.
Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11 ..... S.D. 38 ft.
Houston-Sabine Prod. Co.'s No. 1 Sabine Lbr. Co. (was Triangle Pet. Co.'s No. 2 Sabine Lbr. Co.), 330 ft. N and E, SW cor., Sec. 36-8-12 ..... Dry and abnd. 2,508 ft.
Pelican Nat. Gas Co.'s No. 10 La. Long Leaf Lbr. Co., 105 ft. S, 188 ft. W, NE cor. NE NE, Sec. 10-7-11 .. Set 6⅝-in. 2,335 ft.
H. W. Perritt's No. 5 Bowman-Hicks, 330 ft. S, 410 ft. E, NW cor. SW SW, Sec. 2-7-12 ..... Drlg. 1,625 ft.
The Texas Co.'s No. 1 L. C. DeLatin, 1,120 ft. W, 200 ft. N, SE cor., Sec. 3-7-11 ..... Set 6-in. 2,343 ft.

Stop corrosion losses
and reduce tank replacements » » »

PETRO-SEAL— *the neutral separating seal* —protects both oil and metal!

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Cleveland, Ohio

Gentlemen: Please send me complete information on PETRO-SEAL.

Name _____

Company _____

Address _____

_____

ARKANSAS

UNION COUNTY—EL DORADO

Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15 ..... Chalk 5,427 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... S.D. 2,608 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. S½ NW, Sec. 11-18-13 ..... T.A. 3,586 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13 ..... Location.
Wilson & Chapman's No. 1 H. Norman, 330 ft. N and E, SW cor. SE NE, Sec. 3-18-13 ..... Set 6⅝-in. 3,560 ft. T.D. 3,583 ft.

EAST TEXAS

PANOLA COUNTY

Daisy O. & G. Co.'s No. 1 Rucks, Jno. Palmer Sur. .... S.D. 3,664 ft.
Dillon & Braham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,363 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur. ..... S.D. 1,555 ft.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur. .. Location.
Southwestern O. & G. Co.'s No. 1 E. R. Vinson, 3,005 ft. S, 1,001 ft. W, NE cor. C. T. Anderson Sur. ... S.D. 2,650 ft.

MISSISSIPPI

HINDS COUNTY

Jackson O. & G. Corp.'s No. 3 Mayes, Sec. 2-5n-1e, 30 ft. N and 60 ft. W of SE cor. NE NW ..... Began Sept. 14; set 10-in. 87 ft.
Love Petroleum Co.'s No. 1 Federal Compress & Warehouse Co., Sec. 15-5n-1e, 662 ft. S and 2,120 ft. E, NW cor. ..... Rigging up.

RANKIN COUNTY

James Alexander, tr.'s No. 1 Wright Cast Stone Co., 200 ft. S, 1,460 ft. NE cor. NE NW, Sec. 13-5n-1e ... Derrick.
Cummins & Montgomery's No. 1 Ivey, Sec. 12-5n-1e, NE Lot 10 of Block D, E. Jackson Place, 1st addition ..... Derrick pattern.
J. E. Grandstaff et al's No. 1 Burford, 2,210 ft. E, 800 ft. N, SW cor., Sec. 11-5n-1e ..... Drlg. Wilcox 2,140 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

ADAMS COUNTY

Company, farm and location—	Remarks:
Ark.-La. P. L. Co.'s No. 1 Brandon Hall Farms, 201 ft. from W line, 390 ft. from S line, Lot 32, Brandon Subd., Sec. 61-18n-1w	Drlg. broken lime 1,557 ft.

CLARKE COUNTY

Gulf Ref. Co.'s No. 1-A Long Bell Lbr. Co., C SW SW, Sec. 16-2n-16w ..... Drlg. chalk rock 2,740 ft.

HINDS COUNTY

Hilgard Gas Co.'s No. 1 The Mississippi Co., Sec. 4-5n-1e, 1,300 ft. E and 450 ft. N of cen of section ..... Moving in rig.
Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e ..... S.D. 74 ft.
Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e ..... S.D. 20 ft.; W.O.
F. E. Stewart et al's No. 1 Miss. Cotton Seed Products Co., Sec. 4-5n-1e, 320 ft. S and 440 ft. W of NE cor. SE ..... Derrick.

HUMPHREYS COUNTY

Danciger O. & G. Co.'s No. 1 Belgrade Lbr. Co., C NW, Sec. 29-14n-4w ..... Mudding off fresh water 1,409 ft.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 ..... S.D. 2,360 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... S.D. 3,015 ft.
McAlpine et al's No. 1 Cowart, second hole, Sec. 2-12-19.. Reaming to set 5 3-16-in. 3,404 ft.

NEWTON COUNTY

Bob Dalton's No. 1 Majure, 400 ft. N, 300 ft. E of SW cor. SE, Sec. 25-6n-11e ..... Partly rigged up and S.D.

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-16n-17e ... S.D. for fuel 1,715 ft.

RANKIN COUNTY

Attkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-3e ..... S.D. 405 ft.
Gulf Ref. Co.'s No. 1-A Hanna, Sec. 35-5n-3e ..... D.S. stuck 2,745 ft.; T.D. 2,815 ft.
Muse & Muse's No. 1 Webb, center Lot 32, Blk. B, East Jackson Pl., Jackson City Subd., Sec. 12-5-1 ... Set 6⅝-in. at 2,381 ft.
Majestic O. & G. Co.'s No. 1 Elton Lbr. Co., Sec. 10-4n-3e. Derrick.
Meredith et al's No. 1 Allen, 470 ft. W, 295 ft. N, SE cor. SW, Sec. 12-5n-1e ..... Set 6⅝-in. at 2,371 ft.
R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e.. S.D. 900 ft.
Square Deal O. & G. Co.'s No. 1 Spann, NW cor. SE NE, Sec. 13-5n-1e ..... S.D. 2,495 ft.
United Gas Public Service Co.'s No. 1-A McLaurin, 3,950 ft. E, 660 ft. S, NW cor. SW, Sec. 8-5n-3e ..... Began Sept. 11; set 12½-in. 105 ft.
Willis & Culley's No. 1 Applewhite & Holden, 10 ft. N, 60 ft. E, SW cor., Sec. 12-5n-1e ..... Rigging up.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-8-9 ..... Derrick.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 ..... S.D. 2,607 ft.
United Gas Public Service Co.'s No. 1 Tchula Co-Operative Store, 1,980 ft. W, 660 ft. N, SE cor. SE, Sec. 33-15n-3e ..... Began Sept. 10, set 15¼-in. 184 ft.

WEBSTER COUNTY

P. J. McAlpine's No. 1 Henly (was Cumberland Oil Co.'s No. 1 Henly), SE NW, Sec. 15-21n-11e ..... S.D. 1,800 ft.

WINSTON COUNTY

Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14 ..... Drlg. 3,900 ft

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 46)

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim ..... T. D. 4,810 ft.; straightreaming.

TAYLOR FIELD—MEDINA COUNTY

Medina Oil & Refining Co.'s No. 3 R. T. Taylor, 1,700 ft. from N line, 1,050 ft. from E line of Bruchet Sur. No. 135 ..... Location.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Sagarin ..... T. D. 505 ft.; drlg.
Gulf Coast Oil Co.'s No. 1 Elder, NW of same company's No. 1 Harfell ..... T. D. 3,760 ft.; drlg.
Neal-Milton and Kepley Pet. Co.'s No. 1 J. N. Roark, 200 ft. to S line, 200 ft. to E line of 106-ac. tract ..... T. D. 4,267 ft.; making drill stem test.
Saxet Oil Co.'s No. 1 McCampbell, 600 ft. from N and 1,900 ft. to W lines of tract ..... T. D. 494 ft.; set surface csg.
Southern Drilling Co.'s No. 1 Alexander ..... Making location.

CAROLINA-TEXAS POOL—WEBB COUNTY

George S. Marshall's No. 1 Benavides, 660 ft. from S line, 150 ft. from E line of Sur. 683 ..... Location.
Sur. 135 ..... T. D. 2,324 ft.; set csg.
Magnolia Petroleum Co.'s No. 4 Wilson, 1,520 ft. from W line, 300 ft. from N line of Sur. No. 134 ..... Location.
Humble Oil & Refining Co.'s No. 1 White, 330 ft. from S line, 1,650 ft. from W line of Sur. No. 58 ..... T. D. 112 ft.; set surface csg.
Thomas & Tarver, Inc.'s No. 2 Bishop Cattle Co., 2,346 ft. from S line, 1,005 ft. from W line of Sur. No. 135.. T. D. 2,200 ft.; drlg.

COLE POOL—WEBB COUNTY

French Oil Corp.'s No. 4 R. Benavides, 1,945 ft. from N line, 150 ft. from W line of Sur. 659 ..... Rigging up.
Magnolia Petroleum Co.'s No. 5 A. Benavides, 1,945 ft. from N line, 150 ft. from E line of Sur. 660 ..... Rigging up.
O. W. Killam's No. 20 Bruni, 1,420 ft. from NE line, 175 ft. from NW line of Sec. 9 of Arispe grant ..... Location.

CHAPMAN POOL—WILLIAMSON COUNTY

Westbrook Oil Corp.'s No. 3-A Lawrence, 150 ft. from S and E lines of tract in S. Miller Sur. ..... Location.

KILLAM-CUELLAR FIELD—ZAPATA COUNTY

O. W. Killam's No. 44-B Cuellar, in Sur. 277 ..... T. D. 1,552 ft.; complete, 100 bbls.
O. W. Killam's No. 28-A Cuellar, in Sur. 277 ..... T. D. 100 ft.; drlg.
O. W. Killam's No. 29-A Cuellar, in Sur. 277 ..... Location.

ESCOBAS POOL—ZAPATA COUNTY

E. K. Bateman's No. 1 M. Garza, in Comitas grant ..... Making survey.
Trevino Oil Corp.'s No. 10 Trevino, in Sur. 412 ..... T. D. 1,215 ft.; complete, 35 bbls.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 46)

Mauldin et al's No. 1 Kimball, 300 ft. S Grayburg's No. 1-A Kimball, S. Winship Sur. ..... T. D. 3,544 ft.; standing.

BEXAR COUNTY

J. E. Anderson's No. 1 Suburban Irrigated Farms, 500 ft. to N line, 600 ft. to E line of C. Logan Sur. ..... T. D. 330 ft.; shut down.
Ingersoll-Miller's No. 2 Carruth, 3,900 ft. S, 2,500 ft. W of NE cor. of tract in Francisco Bolen Sur. ..... T. D. 480 ft.; standing.
Moore-Jaurer's No. 1 Ellison, 2,916 ft. from E line, 1,500 ft. from S line of T. York Sur. ..... T. D. 2,170 ft.; reinstated; sidetracking.
Dr. Ewell Neil's No. 1 J. Watson, 500 ft. from W line, 1,700 ft. from S line of B. Martinez Sur. ..... T. D. 71 ft.; set surface csg.
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio ..... T. D. 865 ft.; standing.
Tri-State Oil Co.'s No. 1 E. B. Carruth, 2,500 ft. from S line, 2,560 ft. from E line of tract in F. Bolen Sur. T. D. 770 ft.; set 10-in. csg.

CALDWELL COUNTY

Ralph R. Lewis' No. 1 Keith McGee, 600 ft. from E and S lines of tract in J. Pinchback Sur. ..... T. D. 50 ft.; laying water line.
Mills et al's No. 1 McMahon, 275 ft. SW line, 75 ft. SE line of tract, J. Pinchback Sur. ..... T. D. 2,502 ft.; abnd.

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 270 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur. ..... T. D. 722 ft.; standing.

DEWITT COUNTY

Gibson & Sturm's No. 1 Clark, Dolores Alderete Sur. ..... Rigged up; standing.

DUVAL COUNTY

Camp and Southern Crude's No. 2 Hubbard, 990 ft. from N line, 330 ft. from W line of B.S.&F. Sur. No. 73 ..... T. D. 1,781 ft.; drlg. in sand.
L. E. Lockhart's No. 1 Sutherland, 330 ft. from N and W lines of Sur. 511 ..... T. D. 2,550 ft.; drlg.
S. J. Carpenter et al's No. 1 Juan Benavides, Blk. 38, Mesquite grant ..... T. D. 1,712 ft.; standing.
Frank Gravis' No. 1 Shallert, Sur. No. 255 ..... T. D. 1,000 ft.; drlg.
South Texas Production Co.'s No. 1 Benavides ..... Making location.

FRIO COUNTY

A. H. Wray's No. 1 Roche, 330 ft. from N and W lines of NW SE, Sec. 123, A. Hutzler Sur. ..... T. D. 1,526 ft.; shut down.

GUADALUPE COUNTY

Harry Bruner's No. 2 Jim Sherrill, 330 ft. from NW and SW lines of tract in George Allen League ..... T. D. 180 ft.; standing.
McGarrity et al's No. 1 A. Wesch, Jr., 150 ft. to N and E lines of farm, H. M. Thompson Sur. ..... T. D. 1,200 ft.; drlg.
Schleyer, Atherton and Armstrong's No. 1 Ogletree, Robert Smith Sur. ..... T. D. 1,745 ft.; shut down.
Linne et al's No. 1 J. E. Linne, center 263-ac. tract in V. Cortario Sur. ..... T. D. 1,570 ft.; shut down.

GOLIAD COUNTY

Camp and Stanolind's No. 2 Pettus, 2,000 ft. N of No. 1.. Moving in machinery.

HAYS COUNTY

J. C. Jones et al's No. 1 Byder, John Ingram Sur. ..... T. D. 930 ft.; standing.

JIM HOGG COUNTY

Cole Petroleum Co.'s (Peterman-Minahan) No. 1 Palacious, 450 ft. from W line, 150 ft. from N line of Blk. 14, Sur. 231 ..... T. D. 1,360 ft.; resuming drlg.

JIM WELLS COUNTY

Stanolind Oil & Gas Co.'s No. 1 N. A. Hoffman, 6,800 ft. from S line, 10,000 ft. from W line of most easterly NE cor. of 7,000-ac. ranch in La Trinidad Sur. ..... Spudding in.

KARNES COUNTY

V. F. Neuhaus' No. 1 Russell, 150 ft. from E line of tract, 150 ft. N of highway, Carlos Martinez Sur. ..... Spudded in; drlg. water well.

KENDALL COUNTY

Borgett et al's No. 1 W. Haag, 3,804 ft. from N line, 1,506 ft. from W line of W. Avery Sur. ..... T. D. 1,245 ft.; shut down.
Dixon Oil Co.'s No. 1 Ottmar Behr, 822 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale ..... T. D. 2,708 ft.; drlg.
Sitton et al's No. 1 Garvin, C of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 1,482 ft.; shut down.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county ..... T. D. 50 ft.; shut down.
Sartain's No. 1 Lawhon, 30 ft. SE of Perkins' No. 1 Lawhon; taken over at 281 ft. ..... T. D. 575 ft.; no report.

KERR COUNTY

Herbert Oil Co.'s No. 1 J. D. Witt, 1,320 ft. N line, 1,320 ft. W line of Sec. 1,923, W. H. Hamilton Sur. ... T. D. 200 ft.; standing.
Evans & Gant's No. 1 Selker-Mears, C.C.S.D.&N.G.R.G. Sur. No. 1,605 ..... T. D. 4,031 ft.; shut down.
Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 25 ..... T. D. 1,312 ft.; standing.
Evans & Gant's No. 1 Love in J. Martinez Sur. No. 1,594, 1,320 ft. from W line of survey and 660 ft. S of S line of Sur. No. 1,597 ..... T. D. 4,060 ft.; shut down.
Evans & Gant's No. 2 Love, 150 ft. S and W line of Sur. 1,593 ..... T. D. 2,450 ft.; drlg.

LASALLE COUNTY

Buckley Ranch Oil & Gas Co.'s No. 1 Buckley, 200 ft. from S line, 330 ft. from W line of Sur. No. 37 ..... Location.

LIVE OAK COUNTY

Henderson Coquat's No. 1 Hewitt ..... T. D. 400 ft.; standing.

LEE COUNTY

Burt et al's No. 1 R. C. Saunders, J. Maxmillan Sur. ..... T. D. 4,024 ft.; temporarily abnd.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. ..... T. D. 3,385 ft.; fishing.
C. B. Polk et al's No. 1 Stolts, Hiram Donohue Sur. ..... T. D. 2,300 ft.; shut down.

MAVERICK COUNTY

I. N. Boicourt's No. 1 Bandera School Land ..... T. D. 2,284 ft.; drlg.

McMULLEN COUNTY

Whall, Scherer et al's No. 1 Shiner, Henry Brewer Sur. ... T. D. 2,008 ft.; shut down.
A. E. Adams' No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur. ..... T. D. 175 ft.; drlg.

MEDINA COUNTY

Frank A. Brown's No. 1 Fohn, 150 ft. from E line, 790 ft. from N line of J. F. Torry Sur. No. 113 ..... T. D. 524 ft.; drlg. in rock.
Genard Bros.' No. 1 L. Crawford, 150 ft. to N and W lines of tract in J. Keppler Sur. No. 478 ..... T. D. 1,840 ft.; drlg.
J. H. Hickey's No. 1 Jungman, at N end Chicon Lake .... T. D. 650 ft.; shut down.
Star Pet. Co.'s No. 1 Medina Valley Irrigation Co., 150 ft. from S and E lines of Isom Palmer Sur. No. 20... T. D. 525 ft.; shut down.

MILAM COUNTY

Dil-Tex Oil Corp.'s No. 1 E. Lawson, 560 ft. from NE and 270 ft. from SE lines of farm in Fernando Rodriguez Sur., near Cause.....T. D. 400 ft.; drlg.
H. W. Elliott's No. 1 Marek, 767 ft. from N line, 500 ft. from W line of 160-ac. tract in B. Wickson Sur.....T. D. 1,295 ft.; drlg.
Nowlen's No. 1 Beard, 1,350 ft. from SE line, 450 ft. from SW line of farm, in J. F. Guthrie Sur., 4 miles S Thorndale .....T. D. 1,495 ft.; drlg.
Red Bank Oil Co.'s No. 1 Foster, A. G. Berry Sur.....T. D. 4,690 ft.; sidetracked; drlg. at 4,418 ft.

NUECES COUNTY

Southern Crude Oil Pur. Co.'s No. 1 Chas. E. Stratton, 1,650 ft. E line, 330 ft. S line of P. Sancho Sur.....T. D. 4,752 ft.; tested 8,000,000 ft. gas and spray of gasoline; coring deeper.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW. Sec. 175.....T. D. 2,530 ft.; hauling in csg.

SAN PATRICIO COUNTY

Jacob, Buzzini, Pickett's No. 2 Baldwin, three-fourths mile from S and W lines of tract.....T. D. 3,804 ft.; tested gas and a little water; coring deeper.
Welder Oil Corp.'s No. 2 Welder, 150 ft. E of C of W line of 100-ac. tract.....T. D. 3,654 ft.; tested 1,000 lbs. in 4 minutes; coring.

TRAVIS COUNTY

C. R. Franklin et al's No. 1 J. Wilson, 160 ft. from N and W lines of farm in A. Alexander Sur.....Drlg.
Fritz Fuchs' No. 1 L. Ballerstedt, 450 ft. from N line, 750 ft. from E line of tract in Amos Alexander Sur...T. D. 1,200 ft.; drlg.
Ray & Henze's No. 1 Hatech, in C of tract in S. Hamilton Sur. .....T. D. 100 ft.; shut down.
Waldron et al's No. 1 T. Cook, 900 ft. from NW line, 3,500 ft. from SW line of D. H. Minor Sur.....T. D. 1,200 ft.; resumed drlg.

WEBB COUNTY

Cole Pet. Co.'s No. 4 Benavides, Sur. No. 1,613.....T. D. 4,030 ft.; drlg.
Eugene Garner, Jr.'s No. 1 Billings, 411 ft. E line, 956 ft. N line of NW NE, Sur. 71.....Building derrick.
O. W. Killam's No. 2 Bruni, S of Los Ojuelos.....T. D. 1,214 ft.; drlg.
South Texas Production Co.'s No. 1-B Bruni, 660 ft. from NW and SW lines of Sur. No. 127.....T. D. 2,725 ft.; drlg.

WILLIAMSON COUNTY

Citizens Oil Development Co.'s No. 2 Forewood, 1,200 ft. to NE line, 1,420 ft. to SE line of farm and survey in A. S. Fisher Sur.....T. D. 1,560 ft.; coring.
Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tract in B. C. Low Sur., S of Georgetown.....T. D. 1,325 ft.; drlg.
H. Fritz' No. 2 Fee, 35 ft. N of No. 1 Fee.....T. D. 650 ft.; shut down.
McLean's No. 1 R. C. Miller, 300 ft. from S line, 150 ft. from W line of farm in Manlove Sur.....T. D. 1,610 ft.; shut down after sidetracking.
R. S. Wilson's No. 1 Speckels, 150 ft. N of road, 600 ft. from W line of farm in J. Jordan Sur., 1 mile N of Coupland .....Drlg. 875 ft.

WILSON COUNTY

A. M. Blume's No. 1 Nickolson, C. Diaz Sur.....T. D. 1,340 ft.; changing rigs.

ZAPATA COUNTY

F. H. Etheridge's No. 1 Henne-Winch, in Sur. No. 286...T. D. 1,000 ft.; drlg.
H. L. Sargent's No. 1 Gutierrez, 922 ft. from W line, 472 ft. from S line of Blk. 5, Porcion 16, in Borrego grant .....Rigged up and shut down.
T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur.....Rigged up and standing.
Bill Henry et al's No. 1 Gopher Trust estate, Borrego grant .....T. D. 1,525 ft.; standing.
National Oil Co.'s No. 1 Zapata Trust estate, 617 ft. NW line, 96 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 .....T. D. 600 ft.; standing.
National Oil Co.'s No. 2 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant.....T. D. 1,320 ft.; standing.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 48)

Cullen & West and Gulf Prod. Co.'s No. 4-A Lockwood & Sharp, J. Rabb Sur., 550 ft. W of No. 2-A ..... Derrick.
Cullen & West and Gulf Prod. Co.'s No. 2 H. P. Lockwood, J. Rabb Sur., 300 ft. N and 900 ft. W out of SW cor. 383-acre tract ..... Location.
Cullen & West and Gulf Prod. Co.'s No. 2 A. P. George, J. Rabb Sur., 300 ft. S and 905 ft. E out of NW cor. 200-acre tract ..... Coring hard sand showing oil and salt water 3,826 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 6 Lost Lake, 2,481 ft. W and 289 ft. S of No. 5 in Lost Lake ..... Drlg. 220 ft.

NASH—FORT BEND COUNTY

Harrison & Abercrombie's No. 15 Nash, Thomas Alsbury S League, 450 ft. E and 75 ft. S of Rycade Oil Corp.'s No. 13 Nash ..... Drlg. lime 4,236 ft.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

Gulf Production Co.'s No. 4 McFaddin, J. McFaddin Sur.. Drlg. gumbo 1,925 ft.
Humble Oil & Ref. Co.'s No. 8 Sterling, James McFaddin Sur., 150 ft. from N line and 1,650 ft. from E line of 512-acre tract ..... Drlg. sticky shale 4,321 ft.

REFUGIO—REFUGIO COUNTY

Larco Gas Petroleum Co.'s No. 4 Strauch heirs, 150 ft. from N line and 150 ft. from W line, Lot 6, Blk. 2. Spudded.
Moody-Seagraves Prod. Co.'s No. 4 O'Connor, Refugio Town Tract, 150 ft. from N line and 1,282 ft. from W line of 60-acre tract ..... T.D. 6,477 ft.; cutting and pulling liner 6,456 ft.
L. L. Smith's No. 1 L. M. Rogers (W.O.), C of Blk. 87, Refugio Townsite ..... T.D. 6,457 ft.; cmtd. 4½-in. csg. 5,300 ft.; set whipstock; standing.
United Prod. Corp.'s No. 6 O'Brien, 150 ft. from S line of tract, 350 ft. W of No. 3 ..... Oil sand 6,438-51 ft.; twisted off joint drill stem; S.D.; waiting orders.
United Prod. Corp.'s No. 4 M. F. Lambert, Wm. Hews and L. Brown Sur., 2,514.7 ft. NE along NW line from SE cor. lease and 330 ft. NW at right angles.... Drlg. hard shale 5,923 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co.'s No. 5-A Farquahar, 105 ft. S and 110 ft. E of NW cor. SW NE, Sec. 8-10s-9w ..... Trying to set 9⅝-in. csg. 6,455 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 10 Housierre-Latrielle, 5,435 ft. E and 1,070 ft. N of SW cor., Sec. 47-9s-2w ..... Drlg. hard shale 7,306 ft.

EDGERLY—CALCASIEU PARISH

Pelican Natural Gas Co.'s (Rex) No. 3 Prairie Narroni, Sec. 21-9s-11w, 125 ft. from S line and 50 ft. from W line of tract ..... T.D. in salt 4,618 ft.; plugged to sand 3,200 ft.; tested salt water; abnd.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 26 Watkins, 1,190 ft. N and 1,343 ft. W of SE cor. of Sec. 13-12s-10w ..... Derrick.
Calcasieu Oil Co.'s No. 3 Landry, Sec. 13-12s-10w, 139 ft. from N line of 11-acre tract and 300 ft. E of No. 1.. T.D. 2,180 ft.; rebuilding derrick.
R. E. Seiss' No. 2 J. M. Vincent ..... Drlg. rock 2,096 ft.
J. G. Sutton's No. 2 Irwin, 1,600 ft. W and 200 ft. N of SE cor. NE SE of Sec. 13-12s-10w..... Spudded.
Yount Lee Oil Co.'s No. 43 State, 1,690 ft. W and 1,320 ft. N of SE cor. of Sec. 13-12s-10w ..... Rig.

VINTON—CALCASIEU PARISH

Vinton Petroleum Co.'s No. 11 Matilda Gray, Sec. 33-10s-12w, 600 ft. from S line and 195 ft. from W line (D.D.) ..... Set 2 jts. screen 3,680 ft.; bailing.

STARK—CALCASIEU PARISH

Gulf Refining Co.'s No. 28 Lutcher-Moore, Sec. 19-9s-12w.. Drlg. gumbo 726 ft.

MISCELLANEOUS WILDCATS

TEXAS

BRAZORIA COUNTY

United Oil Syndicate's No. 1 Levitt, 900 ft. from W line and 400 ft. from S line of John Deske Sur. .....T.D. 1,594 ft. in gumbo; rebuilding derrick.

BURLESON COUNTY

Reynolds Oil Co.'s No. 1 Harris, 500 ft. from W line and 400 ft. from N line of J. M. McKean Sur. .....Abnd. 400 ft.
Marek & Son's No. 3 A. Marek, N. McFaddin Sur., 1,068 ft. N and 225 ft. W of SE cor. of tract .....Sand 700 ft.; set 3 jts. 8-in. surface csg.
Marts et al's No. 1 W. H. Boyett, W. McWilliams Sur., 3,168 ft. N of N cor. of City National Bank 208-acre tract and 300 ft. SE of NW line of Boyett tract.. Drlg. sticky shale 2,648 ft.
Mid-South Oil Co.'s No. 1 Duckworth (W.O.), E of Clay Station ..... T.D. 3,070 ft.; rig up to deepen.

FORT BEND COUNTY

Stone & Wyman's No. 1 Beard, H.&T.C. Sur. No. 118, 1,150 ft. from NW line and 1,892 ft. from NE line.... Drlg. gumbo 700 ft.

GRIMES COUNTY

Rianjo Oil Co.'s No. 2 Cuthrell, Pat B. O'Connor Sur., C of 110-acre tract ..... Shut down for fuel 1,382 ft.

HARRIS COUNTY

Givens & Daybault's No. 1 Lobit, David Middleton Sur., Blk. 19, Lobit Subd. ..... Drlg. shale and lime 2,006 ft.
Humble Oil & Ref. Co.'s No. 2 Irwin (D.D.), Mykawa, Wm. Lovett Sur. ..... Drlg. shale 4,822 ft.
Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 200 ft. from W line, Lot 261, Wm. Lovett Sur. ..... Location.
J. P. Hunnicutt's No. 1 Haney, T. Pitching Sur., 150 ft. out of NE cor. of Geo. E. Haney 730-acre tract ..... Drlg. shale and lime 2,933 ft.
Louisiana Oil & Dev. Co.'s No. 1 J. W. Wilson, W. Ritchie Sur. ..... Location.
Shubert & Alexander's No. 1 Herman Hale, 1,058 varas E of NW cor. R. A. Hanks Sur., thence 790 varas S and thence 70 varas W 74° ..... Drlg. gumbo 2,143 ft.

JACKSON COUNTY

Chicago-Gulf Oil Co.'s No. 9 Drushell, Edna F. Rodriguez Sur., 1,080 ft. N, 58° E No. 8 ..... Derrick.
Francitas Oil & Land Co.'s No. 1 Thrull, 3,260 ft. SW of N cor., P. Green Sur., 540 ft. SE of E bank Caranchua Creek ..... Derrick.

JEFFERSON COUNTY

Humble Oil & Ref. Co.'s No. 1 Nelson, Wm. Rice Sur., 550 ft. from N line and 50 ft. from E line of W½ of 1,071-ac. tract ..... Rig.
John I. Gipkin and Elam's No. 1 Broussard, McGaffey Sur., 800 ft. from S line in center E and W of 206-ac. tract ..... Location.

LIBERTY COUNTY

L. B. House's (I. R. Ingram) No. 1 C. T. Palmer, James Fenner Sur., 1,000 ft. from W line and 850 ft. from S line of tract ..... Shut down in shale and lime 2,716 ft.
Hamm et al's No. 1 Harvard, Davis Hill ..... Gum o 1,015 ft.; S.D.

MONTGOMERY COUNTY

Humble Oil & Ref. Co.'s No. 1 W. A. Penn, 750 ft. from N line and 900 ft. from E line of S. J. McFarland Sur. ..... Drlg. shale 1,248 ft.
Strake et al's No. 1 South Texas Dev. Co., 468 ft. in westerly direction along N line of Theo. Slade Sur. from SW cor. of A. McGowan Sur., and thence 750 ft. in southerly direction at right angles from said line in Slade Sur. ..... Drlg. shale and lime 2,125 ft.

NEWTON COUNTY

R. T. Briscoe's No. 1 R. C. Windham, A. L. Stewart Sur., 1,000 ft. E and 550 ft. N of SE cor. Asa Huffman tract ..... Location.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract ..... T.D. 4,603 ft.; sidetracked 1,200-2,200 ft.; S.D.
Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1 ..... Drlg. gumbo 1,691 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman ..... S.D. 3,162 ft.
T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 ..... Rig.
Trans-Coastal Oil Co.'s No. 1 M. E. Roberts, J. F. Rumayor Sur., 350 ft. from W line and 150 ft. from N line of tract ..... S.D. 734 ft.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 14, Bonnie View Ranch Subd. ..... Drlg. shale 4,620 ft.
Humble Oil & Ref. Co.'s No. 1 O'Connor, John Keating Sur., 6,012 ft. S from NE cor. along SE line of Lon T. Ross Sur., thence 7,375 ft. W at right angles to John Keating Sur. ..... Drlg. sandy shale 3,146 ft.

SAN JACINTO COUNTY

E. P. Edwards' No. 1 J. R. Bennett, Cold Springs ..... S.D. 750 ft.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell ..... Sand and shale showing oil 1,255 ft.; cmtd. 6-in. csg. 1,218 ft.
Allied Pet. Co.'s (Texas Southern Pet. Co.) No. 3 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line ..... Fishing 5,025 ft.

VICTORIA COUNTY

Houston Oil Co.'s No. 1 Conrad, T.&N.O. Sur. No. 1, 1,100 ft. from SW line and 100 ft. from NW line .. Tested salt water 5,003 ft.; drlg. deeper 5,018 ft.
The Texas Company's No. 3 McFaddin, S 15° W., 6,200 ft. and N 75° W 1,850 ft. out of NE cor. John M. Rine Sur. ..... Shale 4,279 ft.; reaming.
United Prod. Corp.'s No. 5-A McFaddin, 4,250 ft. N along extended E line of C. L. Mann Sur., in Maria Traviesa Sur. ..... T.D. 3,928 ft.; cmtd. 7-in. (O.D.) csg. to test gas sand 3,754-59 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-ac. tract ..... Rig standing.

WASHINGTON COUNTY

Cord Oil Co.'s No. 1 Hahn, 500 ft. from N line and 1,852 ft. from W line of J. H. Alcorn Sur., Abst. 3.. No report.
Penn-Tex Oil Co.'s No. 2 Kamas Brenham, S. M. Williams Sur. ..... Drlg. hard lime and shell 3,315 ft.

WHARTON COUNTY

Beard & Brumblow's (Shibe & Gray) No. 1 Brown (W.O.), S of El Campo..... T.D. 2,814 ft.; rig up to deepen.
Bonds & Alexander's No. 1 Hahn, S.A.M.G. Sur., Sec. 13, 300 ft. W and 200 ft. N of NE cor. 152.1-ac. tract ..... Drlg. gumbo 1,469 ft.
W. H. Wallace et al's No. 1 Lee, 600 ft. S and 300 ft. W from NE cor., Sec. 18, G.H.&H. Sur. ..... Set 10-in. csg. 170 ft.

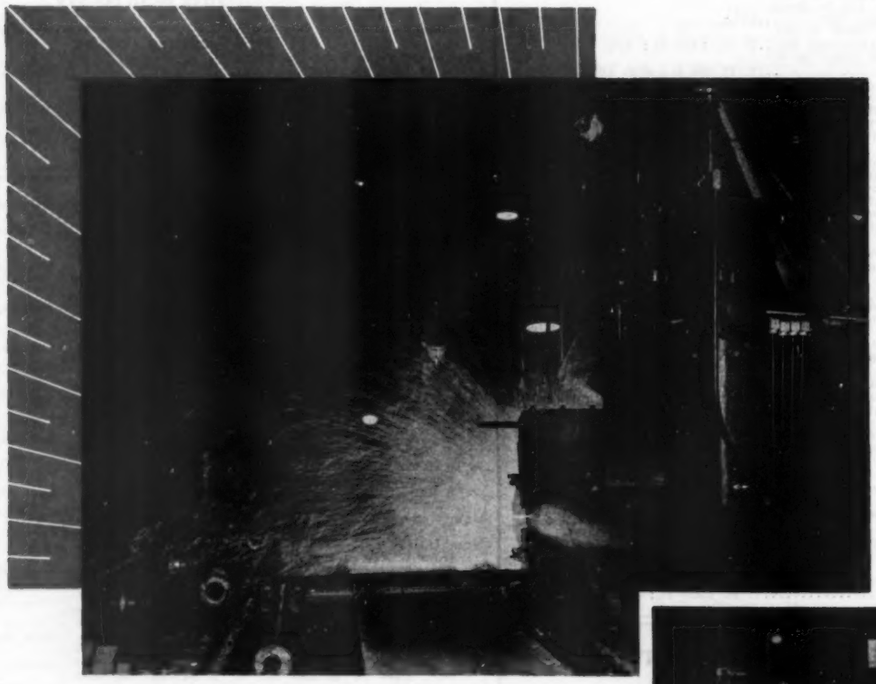
SOUTH LOUISIANA

ASCENSION PARISH

McElroy Petroleum Co., 150 ft. S and 150 ft. W of NE cor., Sec. 29-10s-4e ..... Washing to bottom 4,070 ft.

SPANG

Double Length LINE PIPE



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in all sizes from 2" to 20" O. D. & 55' maximum lengths

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Line Pipe users will welcome this new "Spang" Double Length Pipe—pipe that makes possible greater economies in shipping, handling and installation costs—a line of pipe available in every size from 2" to 20" O.D. and 55' maximum lengths.

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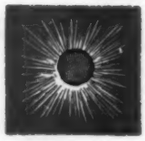

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Welded Mills: Etna, Pa. Sharpsburg, Pa. *Seamless Mills:* Ambridge, Pa.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... S.D. 875 ft.
L. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Standing 6,568 ft.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... S.D. 3,650 ft.
Success Oil Co.'s No. 1 Hewitt, 90 ft. out of SW cor., Sec. 11-9s-11w ..... Rig.
Vacuum Oil Co.'s No. 1 Walt (D.D.), 225 ft. out of SE cor., Sec. 12-9s-7w ..... T.D. 6,979 ft.; sidetracking in hard sand 5,631 ft.

CAMERON PARISH

Vacuum Oil Co.'s No. 2 Cameron Meadows, 3,120 ft. S and 1,900 ft. W from NE cor., Sec. 21-14s-9w (500-ft. S No. 1) ..... Sand showing oil 5,260 ft.; cmtd. 7-in. csg. to test.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 21 Lake Peigneur, Sec. 58-12s-5e, 300 ft. NW of No. 20 ..... Sulphur test.
Jefferson Lake Oil Co.'s No. 32 Lake Peigneur, Sec. 58-12s-5e, 600 ft. NW of No. 21 ..... Sulphur test.
Jefferson Lake Oil Co.'s No. 33 Lake Peigneur, Sec. 58-12s-5e, 600 ft. NW of No. 22 in l'ne with No. 21.. Sulphur test.

IBERVILLE PARISH

Standard Oil Co.'s No. 1 Myrtle Grove-Wilbert, Bayou Choctaw, Sec. 52-9s-11e, 250 ft. W No. 1 Gray ..... Drlg. gumbo 1,900 ft.
Standard Oil Co.'s No. 6 Schwing, Bayou Blue, Sec. 73-9s-11e, 317 ft. S of No. 2 ..... Drlg. sand and shale 4,612 ft.
Standard Oil Co.'s No. 7 Schwing, Bayou Blue, Sec. 74-9s-10w, N 45°, W 1,800 ft. from No. 5 ..... T.D. 1,350 ft.; sand showing oil 1,307-12 ft.; S.D. pending completion of No. 6.

LA FOURCHE PARISH

State Production Co.'s No. 1 Mrs. W. H. Stark, Chacahoula Dome, 1,921 ft. E and 1,340 ft. S of NW cor., Sec. 71-15s-15e ..... Sulphur test.
State Production Co.'s No. 1-B Mrs. W. H. Stark, Chacahoula Dome, 1,921 ft. E and 1,540 ft. S of NW cor., Sec. 71-15s-15e ..... Sulphur test.

PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 5 Cockrell-Moran, Lake Grand Ecaille, 10,377 ft. N and 2,614 ft. W of NE cor. of Twp. 21s-26e ..... Location.
Humble O. & R. Co.'s No. 6 Cockrell-Moran, Lake Grand Ecaille, Twp. 21s-26e, 5,000 ft. E of Washington Sta. ..... Building derrick.

TERREBONNE PARISH

La. Gas & Fuel Co.'s No. 2 Minor, 3,480 ft. S and 1,980 ft. E of NW cor., Sec. 3-18s-16e ..... T.D. 293 ft.; cmtd. 16-in. surface pipe 287 ft.
The Texas Company's No. 3 La.L.&E., Bay Junop ..... Location.
The Texas Company's No. 4 La.L.&E., Bay Junop ..... Location.
The Texas Company's No. 10 State, Lake Barre ..... Location.
The Texas Company's No. 11 State, Lake Barre ..... Moving in rig.
The Texas Company's No. 12 State, Lake Barre ..... Location.
The Texas Company's No. 13 State, Lake Barre (W.O.).. T.D. 4,900 ft. in salt; sidetracked to oil sand 3,684 ft.; cmtd. 9⅝-in. csg. 3,670 ft.
The Texas Company's No. 14 State, Lake Barre ..... Location.
The Texas Company's No. 6 State-Lake Pelto (D.D.), 1,650 ft. N and 670 ft. W from SE cor. tract, Sec. 8-23s-18e ..... Drlg. cap rock 2,237 ft.

VERMILLON PARISH

Pure Oil Co.'s* No. 2 Southwest Louisiana Land Co., 1,300 ft. E and 300 ft. S of NW cor. Sec. 4-12s-1w.. Drlg. sandy shale and shell 3,169 ft.

WEST FELICIANA PARISH

Putnam Syndicate's No. 2 Como Plantation, Sec. 51-1s-4w. Bailed and lime 2,050 ft.; waiting on 8¼-in. csg.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 41)

KIOWA COUNTY

Arresmith & Walker's No. 1 Potts, SE cor., Sec. 31-7-14w ..... Show oil 125-34 ft.; abnd. 290 ft.
Christian's No. 1 Jones, NE SE, Sec. 8-7-18w ..... Shut down 820 ft.

LATIMER COUNTY

P. English's No. 1 Unknown, NW SE, Sec. 16-6-19 ..... Shut down 1,542 ft.

LINCOLN COUNTY

Mote et al's No. 1 School Land, NW cor., Sec. 36-17-5.... Shut down 50 ft.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE, Sec. 32-9-16 ..... Drlg. 5,736 ft.

MURRAY COUNTY

Capitol Prod. Co.'s No. 1 Cutchall, SE NE, Sec. 6-1-2.... Drlg. 1,300 ft.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE, Sec. 21-11-19.. Shut down 1,011 ft.

OKFUSKEE COUNTY

Shepard et al's No. 1 Neveas, SE NW SW, Sec. 3-12-10... Shut down 3,638-90 ft.; Wilcox sand; hole full water.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor., Sec. 21-11-3w ..... Shut down 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW, Sec. 17-11-3w ..... Shut down 5,515 ft.
J. P. Cuniff, trustee's No. 1 Church Land, NE NW SE, Sec. 17-12-4w ..... Shut down 6,700 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW, Sec. 6-20-5..... Shut down 1,950 ft.
Cochran et al's No. 1 Green, NE cor. SW, Sec. 15-23-5.... Rig.

PITTSBURG COUNTY

Tape Oil Co.'s No. 1 Fulton, SE, Sec. 34-7-14 ..... Shut down 1,200 ft.
J. Morrison's No. 1 Fowler, NE SE, Sec. 13-7-17..... Rig.
C. Kennedy's No. 1 Travis, C SW NE, Sec. 15-7-14..... Rig.
C. Canady's No. 1 Jones, NW cor., Sec. 14-8-14..... Rig.

ROGERS COUNTY

Braman Oil Co.'s No. 1 Mare, C SW SE, Sec. 33-19-17 ..Abandoned 945-60 ft.; water.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW, Sec. 23-12-24w..... Shut down 5,150 ft.
L. C. Hivick's No. 1 Davis, C NW NE, Sec. 4-11-26w..... Drlg. 3,275 ft.

WASHITA COUNTY

Cooper & Terhune's No. 1 Blocker, NW cor., Sec. 29-8-19w ..... Drlg. 2,314 ft.
Burns & Prince's No. 1 Deck, SW cor., Sec. 21-8-18..... Shut down 1,950 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW, Sec. 11-1-1E Shut down 4,750 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire's No. 1 R. W. Rowland, NW NE SE, Sec. 18-3s-10 ..... Shut down 1,530 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW, Sec. 7-7-10.. T. D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor., Sec. 35-6s-9 ..... T. D. 740 ft.; plugged back to 450-80 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE, Sec. 18-4s-8w..... Location.

JOHNSTON COUNTY

Gilbreath's No. 1 Readon, SE NW NE NE Sec. 17-4s-5 ..Drlg. 115 ft.

LOVE COUNTY

Autrey et al's No. 2 Cross, CWL SE NE, Sec. 27-6s-2..... Show oil and gas 970-72 ft. and 1,324-34 ft.; shut down; T. D. 1,634 ft.

MARSHALL COUNTY

Dixson's No. 1 McDuffel, SW SE, Sec. 3-7s-6..... Drlg. 845 ft.

Taliaferro et al's No. 1 fee, NW SE SE NW, Sec. 34-5s-5 ..... Shut down 580 ft.
McCrory et al's No. 1 Little, NW SW, Sec. 30-7s-6..... Bailing 10 bbls. of oil 495-97 ft.; 25 bbls.; completed.
D. H. Curry's No. 1 Ward, NE SE SW, Sec. 15-5s-6..... Shut down 2,310 ft.

McCURTAIN COUNTY

The Oil Journal's No. 1 Parks, C NE SW, Sec. 17-6s-23.. Drlg. 720 ft.
Stewart's No. 1 Patterson, C SE SE, Sec. 7-6s-24..... Shut down 975 ft.

PUSHMATAHA COUNTY

George's No. 1 Lane, NW SE, Sec. 32-3s-15..... Shut down 840 ft.
Whitehead et al's No. 1 Messer, SE SW SW, Sec. 35-3s-18 ..... Location.

STEPHENS COUNTY

Brown's No. 1 Hightower, SW SE NE, Sec. 15-3s-5w..... T. D. 989 ft.; show water.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 42)

MORRIS COUNTY

Allender et al's No. 1 Wycoff, C SW SE, Sec. 5-17-7..... Shut down 105 ft.
Urschel et al's No. 1 Bersuch, NW SE NW, Sec. 10-17-7.. Machine.
Hankerson et al's No. 1 Cessman, SW SE, Sec. 24-16-9... Shut down 2,625 ft.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w..... Rig.

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW, Sec. 21-14-15..... Shut down 2,058 ft.

RAWLINS COUNTY

J. G. Durham et al's No. 1 Weaver, SE cor., Sec. 3-2-35w.. Drlg. 3,670 ft.

RICE COUNTY

Detrick & Langston's No. 1 Purcell, NW cor., Sec. 33-19-9w ..... Conglomerate 3,225-46 ft.; show oil and water; T. D. 3,375 ft.; plugging back to 3,265-80 ft.; filled 400 ft. with oil in 14 hrs.; swabbed 36 bbls. of oil, 36 bbls. of water in 48 hrs.; abnd.
Cress et al's No. 1 Sharp, SE NE, Sec. 13-20-10w..... Show oil 3,107-15 ft.; Silicious 3,330-36 ft.; estimated 1,500 bbls.; shut in.

RUSH COUNTY

Dewey & Mitchell's No. 1 Greenawalt, C SW, Sec. 17-19-16w ..... Show of oil in Conglomerate 3,835-80 ft.; plugged back to 3,825-40 ft.; estimated 150 bbls.; shut down.

RUSSELL COUNTY

Agate Oil & Gas Co.'s No. 1 Rochfellow, SE cor., Sec. 6-13-12w ..... Shut down 3,374 ft.
Gilbreath et al's No. 1 Bratton, C NE, Sec. 33-11-13w.... Show oil 3,090-94 ft.; shut down 3,504 ft.; plugging back to 3,189 ft.

SEDGWICK COUNTY

Magnolia's No. 1 McLaughlin, NW cor., Sec. 31-28-1w .. Simpson 3,830-38 ft.; water; abnd.

SALINE COUNTY

Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW, Sec. 20-13-4w ..... Fishing 2,710 ft.

SHERIDAN COUNTY

Flo et al's No. 1 Shoemaker, SE SW, Sec. 27-7-26w..... Drlg. 2,970 ft.

STAFFORD COUNTY

Roesenthal, Stanolind and Amerada's No. 1 Gray, C NE, Sec. 11-24-13w ..... Shut down 2,900 ft.

STEVENS COUNTY

Argus Prod.'s No. 2 Christopher, C NE, Sec. 10-33-39w... Shut down 5,521 ft.

SUMNER COUNTY

Tighe et al's No. 1 Thieson, C NW SE SE, Sec. 22-34-2... Drlg. 2,395 ft.
Trees Oil Co. and Shell's No. 1 Springate, NE SE SW, Sec. 6-34-2 ..... Drlg. 2,010 ft.
Spencer et al's No. 1 Porter, NE SW, Sec. 12-33-3w..... Drlg. 3,510 ft.
Otstot et al's No. 2 Marlow, C SE NW SE, Sec. 22-33-3w Drlg. 4,250 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE, Sec. 16-3-3.... Shut down 1,720 ft.

CANADIAN FIELDS

(Continued from Page 53)

but are rated as producers; and will be judged on a different basis as provided by various clauses of the agreement. Among the independents are Illinois Alberta Oils, Ltd., which has been deepening; McLeod Oil Co., which sold direct to consumers and is deepening one well; Sioux City Oil Co. and Widney Petroleums; and United Oils, Ltd., and Vulcan Oils, Ltd., which have tests still unfinished. New wells not yet finished and for whose participation provision is made, include Hylo Oils' No. 1, and Miracle Oils' Nos. 2 and 3, in the Mercury tract; and Mar-Jon-Freehold's No. 1 and Livingston Syndicate's No. 1 in the far south. Unfinished tests being drilled by Imperial Oil, Ltd., include Sterling Pacific Oil Co.'s No. 2, South West Petroleums' No. 2 and Southern Lowery's No. 3, all in South Turner Valley.

As indicating the ultimate result of restricted production, it is estimated by A. H. Mayland, president of Mercury Oils, Ltd., that with full production in August his company's revenue would have been around $55,000. Under the unitization scheme, it would have been about $28,215. On the other hand, under unitization the revenue would, it is claimed, continue for a much longer period, due to the increased life of the field.

British Columbia Tests

In the Kelowna district, British Columbia, Okanagan Oil & Gas Co.'s No. 1, Section 2-26-Osoyoos, is reported drilling below 1,770 feet after setting casing. Sea level was passed at 1,737 feet. Julius Rickert, geologist for the company, estimates that commercial gas production should be met around 2,500 feet. Small shows of gas and an oil seepage have already been reported, but nothing of commercial importance.

In the Flathead area, southeastern British Columbia, Canadian Kootenay Oil Co. is reported preparing for a test on the North Fork structure. The location is north of Kalispell, Mont. C. D. Wallingford is manager of the company, whose operations are backed by Pacific Coast capital.

Turney Valley

Official figures of pipe line deliveries from the Turner Valley Field for August show the lowest output since March, 1929. The August deliveries aggregated 66,794 bbls., compared with 90,248 bbls. in July and 110,810 bbls. in August, 1930. In March, 1929, the field yielded 56,081 bbls., and every month up to August, 1931, has shown totals much in excess of this figure.

Detailed figures show total deliveries to Imperial Oil, Ltd., of 61,812 bbls. including 15,920 bbls. of crude naphtha, 39,563 bbls. of discolored naphtha and 6,329 bbls. of light crude. In July, Imperial took 23,219 bbls. of crude naphtha, 54,619 bbls. of discolored naphtha and 6,750 bbls. of light crude. Regal Oil & Refining Co. took 4,982 bbls. in August, as against 5,670 bbls. in July.

The decline in output was due largely if not entirely to the Alberta government's prorating of the gas flow together with the 50 per cent restriction imposed by Imperial Oil, Ltd., on deliveries. Regal Oil & Refining Co. took full delivery, though its producers also were subject to government prorating.

The outstanding producing well was Mercury Oils' No. 1 in Section 4-19-2w5, which delivered 5,634 bbls. of crude naphtha and 1,174 bbls. of discolored naphtha in August, against 10,376 bbls. of discolored naphtha in July. Model Oils' No. 1 in Section 22-20-3w5 actually increased its deliveries from 5,062 bbls. in July to

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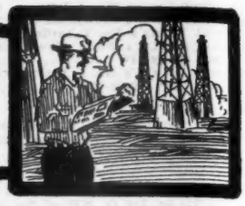

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Tulsa, Oklahoma

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NEW LATEST Model 5-Ton White Truck, never used, with Mounted Braden Type B-15 Winch. Addres Box E-553, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE for a low price. A gasoline powered Sullivan Diamond Core Drill. Write Box E-492, The Oil and Gas Journal, Tulsa, Okla.

STAR 38 TRACTOR MACHINE for trade for Standard Cable Tools.
J. C. Bentley,
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BARGAIN PRICES: Sale or Rent with option to buy complete heavy and light rotary drilling rigs, also all sizes of new and used casing. Texas Supply Co., 2016 Lorraine St., Houston, Texas.

FOR SALE BARGAIN: 1 Standard Lee C. Moore steel derrick and crown block complete (5 sheave) with relegs, steel bull and calfwheel and steel tug rim. 1 set 6" Marion rig irons complete. 1—80 H.P. model 25 Clark Engine. All good condition. Located on our McDowell lease 17 miles south Big Spring. Write or wire Geo. H. Campbell, Receiver, World Oil Company, 712 Electric Bldg., Ft. Worth, Texas.

OIL located before drilling. Geophysical method. Toggodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses, 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

200 Amp. Lincoln Arc Welded 220/3/60. Practically new. Price $425.00. 100 Amp. Federal Butt Welder: 220 V. 60 cy. Complete. Excellent condition. $500.00. 12"x14" Chicago Pneumatic Air Compressor. $350.000. 46"x18' Niles Lathe, Quick change; $1,250.00. Also, large stock of lathes, shapers, mailing machines, pipe machines, bolt threaders; etc. Send for our list. Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West Second St., Cincinnati, O.

FOR SALE: Equipment for six wells on salvage basis, two salvaged, four pumping twenty barrels daily, located West Texas. Write R. R. Hoskins, Fifty-nine thirty-three Wakeforest Rice Court, Houston, Texas.

EQUIPMENT WANTED

WANTED TO BUY one used set of official A. P. I. Cable Drilling Tool Joint Master Gauges size three to five inch. Answer Box E-561, The Oil and Gas Journal, Tulsa, Okla.

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EAST TEXAS CRUDE OIL
Accessible to pipe lines and loading racks, offered at prevailing market prices for immediate or future delivery. Inquiries from refiners, marketers and speculators invited. Steel storage and insurance provided at current rates.
J. G. REAVES,
222 North Broadway,
TYLER, TEXAS.

SHALLOW PRODUCTION 250-600 ft., 3 sands, Hancock County, Ky. 1800 acres with 4 gas wells, two oil wells. G. Taylor Yewell, Owensboro, Ky.

$12.50 Buys deed part oil 2 Oil Royalties City Pool. Ed Milam, Dept. 20, Oklahoma City, Okla.

OFF-SET ACREAGE TO LET on drilling contract. Excellent proposition.
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5,450 bbls. in August, the output being, however, rated as crude oil.

Imperial Drilling

In South Turner Valley, Southern Lowery's No. 3, LSD 4, Section 9-19-2w5, is reported drilling at 5,446 feet, after cementing at 5,178 feet. Sterling Pacific Oil Co.'s No. 2, LSD 10, Section 33-18-2w5, is drilling at 4,083 feet.

In the border fields, Texas-Imperial's No. 1 wildcat in LSD 14, Section 22-8-22w4, on the Lethbridge structure, is drilling at 3,654 feet.

South Turner Valley

In South Turner Valley, Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, is drilling 10-inch open hole in the lower Kootenays around 4,250 feet and is expected to get the limestone around 5,000 feet. The test will probably set 8-inch in the top of the lime.

Miracle Oils' No. 2, LSD 16, Section 5-19-2w5, is at 4,770 feet and drilling in the calcareous horizon above the lime, after passing through the Dalhousie sand. Miracle Oils' No. 3, LSD 11, Section 4-19-2w5, is drilling at 4,100 feet and approaching the Home sands.

In the south end of the field, Mar-Jon-Freehold's No. 1, LSD 9, Section 28-18-2w5, is drilling below 1,680 feet. Livingston Syndicate's No. 1, LSD 5, Section 34-18-2w5, is reported again drilling after cementing against caving at 2,150 feet.

Central Turner Valley

In the central Turner Valley, McLeod Oil Co.'s No. 3, LSD 16, Section 1-20-3w5, is deepening in the lime below 5,100 feet.

Important New Test

An important new wildcat test is likely to be undertaken this fall by Highwood-Sarcee Oils, Ltd., on the Two Pine structure, which runs east of and parallel to the Moose Mountain structure west of Calgary. Plans for development were discussed at the annual meeting of Highwood-Sarcee Oils, Ltd., shareholders held at Calgary recently. Officers of the company are: President, A. W. Dingman; vice president, Ivan H. Crooks; secretary-treasurer, R. H. Straker; directors, Eric L. Harvie, F. Webster, W. A. Ackland and P. J. Timms. The active management is largely in the hands of A. W. Dingman, one of the pioneer operators in the Turner Valley well, and whose Calgary Petroleum Products Co. secured the first light crude show in that field.

Two Pine anticline was first reported on by Dr. G. S. Hume of the Geological Survey of Canada in 1927. The structure extends from a point in Section 12 near Bragg Creek postoffice northwesterly to a fault which cuts through the Moose Mountain area near the Graystone Consolidated test, running northeasterly to Jumping Pound. According to government reports, the Paleozoic lime should be reached from 2,000 to 4,000 feet below the top of the Blairmore formation, with potential oil and gas horizons in the Blairmore, Kootenay and Fernie formations and in the lime. The company is securing further geological reports on the structure preparatory to locating a commercial test.

Tests in the Foothills

On the Moose Mountain structure, Graystone Consolidated's Signal Hill No. 2, LSD 9, Section 34-23-5w5, is drilling considerably below 4,210 feet. Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is preparing to run casing to shut off a small flow of water at 3,190 feet, encountered just after drilling was resumed.

On Fisher Creek, Cotton Belt Mines' No. 1, LSD 5, Section 21-21-4w5, is at 1,970 feet and shut down waiting for fuel.

On the High River-Aldersyde structure, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is drilling at 5,060 feet with increased gas pressure reported.

Government geologists, headed by Dr. G. S. Hume, are doing considerable work this season on the Moose Mountain and adjacent structures.

Hudson's Bay Tests

In the Keho Lake area, southern Alberta, Hudson's Bay Oil & Gas Co.'s Keho No. 1, LSD 2, Section 17-11-22w5, is preparing to resume after running 8⅝-inch casing to 4,623 feet.

In the Castor area, Hudson's Bay's Paintearth No. 1, LSD 5, Section 27-39-15w4, is standing at 4,675 feet.

Border Fields

East of Coutts, in Southern Alberta, Mayland Southern's No. 1, LSD 13, Section 4-1-9w4, on the international Reserve Dome structure, is drilling below 2,000 feet with some increase reported in the gas flow. A potential oil horizon is expected around 2,100 feet.

On the Milk River structure, Commonwealth Petroleums' No. 1, LSD 9, Section 9-3-15w4, is drilling at 4,976 feet, with oil impregnation still showing in the lower Devonian.

On the Twin River structure, Parco Oil Co.'s No. 1, LSD 16, Section 34-1-20w4, is reported resuming after running casing to 2,495 feet.

On the Montana end of the international Red Coulee structure, Alberta Drillers' No. 1 Farbo, SE Section 3-37-4w, failed to get commercial production at 2,577 feet and may be carried deeper.

Ontario Drilling

In Middlesex County, Ontario, Union Gas Co.'s No. 1 Ekfrid, Lot 7, Concession 5 south, Ekfrid Township, is reported down at 1,715 feet. At this depth the test is in the top of the "Big Red" formation and has encountered neither oil nor gas; and is waiting pending a decision whether to drill through to the granite or to finish as a dry hole at the present depth. The location is in a previously untested area about 14 miles east of the Newbury gas area in Mosa Township.

In Kent County, Olga Oil & Gas Co.'s No. 2, S half, Lot 20, Concession 8, Raleigh Township, is drilling at 1,502 feet. Olga's No. 1, 750 feet further south, got its first gas production around 1,507 feet.

Southern Ontario Gas Co.'s test in Lake Erie, opposite the George H. Dawson farm, Lot 187, Talbot Road, Romney Township, has been finished at 1,280 feet with an estimated production of 250,000 feet a day, after a shot. As the lake wells start about 50 feet below the level of the Tilbury-Romney Field, this corresponds to approximately 1,330 feet in the land wells. A small show of gas was previously met at 1,100 feet.

On the Six Nation Indian Reserve in Brant County, Petrol Oil & Gas Co. is continuing development work. The earlier drilling was along the northern extremity of the company's acreage; but recently several good shallow gassers have been brought in about 2 miles further south, and present indications are that production in this area will be better than in the northern area. The southern wells have now been hooked up to the pipe line which was recently extended to take care of their production. The gas from this area is handled by the Dominion Natural Gas Co. The Petrol Oil & Gas Co. now has 38 wells on the reserve in production with two other producers not yet hooked up, and two deep wells in the Dover Field, Kent County. Its sales for the eight months ending August 31, 1931, aggregated 103,115,000 feet compared with 49,131,000 feet for the same period in 1930.

Red Coulee Test

On the Montana end of the international Red Coulee structure, Askalta Oils, Ltd., of Calgary is reported moving an outfit from the Vollbrecht lease, SE SE, Section 11-37-4w, to the Farbo lease in Section 2-37-4w, where it has a development contract with Mid-Continent Oil & Refining Co. Askalta's No. 2 Farbo will spud in this month as an offset to Mid-Continent's No. 1 Farbo. Askalta's No. 1 Vollbrecht finished a dry hole some months ago but Askalta's No. 1 Farbo, drilled on acreage secured from Cosmos Petroleum Co. has proven a satisfactory producer, and the Askalta company will divert its activity entirely to the Farbo acreage.

A. D. QUINN DEAD

A. D. Quinn, salesmanager of the industrial division of the L. H. Gilmer Co., Philadelphia, died suddenly in Chicago, September 17, while on a business trip.

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TULSA OKLAHOMA

Eastern Market Steady for the Moment

But Undercurrent of Uncertainty Whether It Can Weather the Expected Storm as Seasonal Decline Sets In

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Sept. 21.—Constructive developments again featured the week's news in East Coast refined oil markets, with cylinder oils up on all grades and other products, with the exception of paraffin wax, showing firmness.

Weather conditions thus far in the month have been ideal from the standpoint of gasoline consumption, and current indications are that September gallonage will compare quite favorably with that of the average for the three months just past, generally considered as the peak consumption months for the year.

While gasoline is holding its own in both refinery and tank wagon markets, and the retail structure is vastly improved, there is apparently still an undercurrent of uncertainty in marketing circles, and the fear is expressed that the present status quo cannot be maintained once the seasonal decline in consumption actually sets in. Marketing interests are doing everything in their power to consolidate the present position of stability and all efforts are being made to put the market in position to satisfactorily weather the expected coming marketing storm. In this connection, it is felt that the work of the code of ethics committee operating in the East may go far to improve conditions and ameliorate the effects of renewed price cutting marketing practices later on in the year.

Although there is a decided impression in some quarters of the market that stormy days may be looked for before 1931 draws to a close, there are other interests which appear just as firmly convinced that the market has passed through its worst stages, and that any price cutting which may develop later on in the year will be sporadic in character, and pretty well localized, leaving the general market in fairly stable position. Those holding this view base their opinion both on the stronger statistical position of refinery markets and crude oil, and on the fact that independent marketers who normally take the initiative in price cutting activities were severely affected during the intensive "price war" from which the industry has just recovered.

The eastern industry, in general, will go into the closing quarter of the year with the position of most companies more favorable than at any previous time thus far in the year. Valuations of inventories of both crude and products have shown substantial appreciation during the past few months, and surplus stocks of the major products have been reduced to satisfactory working stock levels as a result of the restricted operations of East Coast refineries duirng the summer months.

Refinery Gasoline

Refinery gasoline was steady and unchanged throughout the week, and the tank car market was showing more uniformity than has been the case for some months back. All of the principal marketers were quoting 6 cents per gallon, refinery terminals, with two of the smaller factors quoting 6¼ cents. While the 6-cent price can be shaded occasionally, there is very little off-priced gasoline to be had locally, and the jobbing market is more free of cut-price material than at any other time previously thus far in 1931. Contracts for cheap East Texas gasoline have practically all expired, and faced with higher replacement costs, the sellers who were previously demoralizing the tank car market with their underselling activities, utilizing distressed gasoline, are now being forced to fall into line with the general market.

At other points along the Atlantic Seaboard, the market is generally quoted at a range of 6 to 6½ cents, according to location, with Pure Oil the single exception with a posted price of 5½ cents per gallon at four points. In this connection it is interesting to note that for the past several months Pure Oil has been a growing factor in eastern tank car and retail markets, and has managed to consistently undersell other marketers in both the wholesale and retail divisions of the trade. This underselling has apparently been part of a definite marketing policy, however, and differs widely from the activities of other marketers who have been quoting the general level of posted prices, and shading on actual business. Pure Oil gasoline can be bought at retail stations in New York City at 8 gallons for $1.05, this comparing with the posted price (and one generally adhered to) of 16.3 cents per gallon on the part of most of the other larger sellers.

There has been a good movement in the tank car market during the week, unseasonably warm weather materially stimulating consumption.

Tank Wagon Gasoline

Markets have continued to firm up throughout the territory, and large marketers report considerable success in stabilizing various markets, with posted prices more generally held to now than for many months past.

There has been an exceptionally heavy tank wagon movement of gasoline thus far in the month, and if present weather conditions hold it is expected that September gallonage will establish new high records for the month on the part of many sellers.

Richfield of New York is conducting an extensive advertising campaign on its new "Richfield Golden," the product of a Cities Service subsidiary, and the company is understood to be handling a record gallonage. This shift from a straight California motor fuel to a Mid-Continent product is being closely watched by the remainder of the eastern trade.

Atlantic Refining is extensively publicizing its new product, "White Flash" gasoline, and it is expected that other new brands will make their appearance in eastern markets as refineries supplying this area complete improvement programs designed to give their motor fuel output a higher octane rating.

Lubs

Cylinder oil prices have been advanced all along the line, reflecting the recent advances in Pennsylvania crude oil quotations, and spot quotations are up 1½ to 2 cents per gallon all along the line. Compounders in most instances had not bought heavily at the old prices, and thus sellers are in position to reap the full benefits of the higher quotations, and consuming manufacturers are necessarily in the market for replacement stocks right along to take care of their current requirements.

Revised quotations, applying to oil in barrels in car lots, Bayonne, follow: 600 steam refined, 20 to 20½ cents per gallon; 635 steam refined, 22 to 23 cents; 650 steam refined, 23 to 24 cents; 600 Pennsylvania flash, 25 to 26 cents; 630 Pennsylvania flash, 29½ to 30 cents; 600 Warren "E," 24½ to 25 cents; 600 Oil City "E," 23½ to 24 cents; bright stocks, light, 33 to 34 cents; dark, 32 to 33 cents.

There has been a good demand for Pennsylvania lub oils during the present season, and many small refiners have been successful in opening up new outlets for their product. Faced with the necessity of competing with the large integrated units, which have been featuring Pennsylvania base lub oils, a number of smaller Pennsylvania refiners have developed a substantial business in package oils sold through department and chain grocery and other stores, not previously in the field as handlers of petroleum products. The ability of some of the smaller sellers to distribute their lubs under their own brands in this manner has in some measure relieved selling pressure in the bulk oil market.

Red and pale oils were coming in for more inquiry during the week, and there were numerous indications of a quickening in industrial activity, with consequently greater consumption of industrial lubs. Tank car movement of these oils has shown considerable stimulation since the start of the month, and refiners are generally optimistic regarding the outlook for the closing quarter of the year.

Paraffin Wax

Further easing off in buying interest has brought about a weaker market for fully refined grades on spot, and quotations are one-eighth cent per pound lower all along the line this week. Spot 120-122 a.m.p. is quoted at 2⅞ cents, with 125-127 a.m.p. at 3 cents, 130-132 a.m.p. at 3½ cents, 133-135 a.m.p. at 4 cents, and 135-137 a.m.p. at 4½ cents per pound.

While the statistical position of the market is far better than that last year at this time, lack of export buying and hand-to-mouth operations on the part of the domestic trade has brought out some weak holdings, and buyers are continuing to restrict purchases to immediate needs while the market continues soft. Stocks held by refiners as of July 31 totaled 198,407,000 pounds, against 200,836,000 pounds on hand at the close of the previous month and 254,999,000 pounds on July 31, 1930.

Diesel Oil

A steadier undertone was reported in the Diesel oil market position during the past week, with refiners holding firm at $1.40 per barrel, in bulk, f.o.b. New York refinery terminals. While some falling off in demand from the Transatlantic marine trade is anticipated during the balance of the year, refiners believe that the growing vogue for short cruises out of New York will give them enough gallonage to offset that which might be lost as a result of curtailment of Transatlantic sailings.

The domestic Diesel oil situation, refiners here state, has firmed up materially, with California and Gulf markets in stronger position than was the case a few months ago, and with the present trend in shipping operations, price competition afforded by Russian and Rumanian oils in European ports is not as important a factor as would be the case under normal conditions in the shipping industry.

Bunker Oil

Refiners in principal East Coast markets continue to quote bunker "C" grade oil at 70 cents per barrel, bulk, at terminals, and report that business was well sustained during the week. There has been a marked lessening of price competition by California and Gulf Coast fuel oils during recent weeks, and the feeling in local market circles is substantially improved. There is still some talk of a 10-cent advance in posted prices here, but opinion appears evenly divided on the probability of such a step within the next 30 days.

Industrial demand for fuel oil is on the mend, and while there is still some price cutting on deliveries to shore consumers, there is a growing tendency to get the market up to the posted level, and refiners look for a stronger industrial market shortly.

Furnace Oil

Considerable activity is developing in the market for domestic heating oils, and it is apparent that the market will go into the heating season in much stronger position than was previously expected. Some demand for furnace oils for eastern delivery from the Gulf has developed during the past week, but prospective buyers are running into a firm market at the Gulf and are unsuccessful in getting oil at the prices they had expected to pay.

Marketers here are booking furnace oil contracts for the current season (which runs over into 1932) at 7¾ to 8 cents per gallon for 36-40 gravity oil, 6½ cents per gallon for 32-36 gravity oil, 6½ cents for 28-32 gravity oil, 5 cents for 24-26 gravity oil, 4½ to 4¾ cents for 18-20 gravity oil, according to quantity, and 3½ to 3¾ cents per gallon for 14-16 gravity oil, here again the price depending upon the quantity purchased.

As a result of price cuts put into effect by oil burner manufacturers during the past six months, the volume of new installations has materially exceeded expectations, some manufacturers establishing new high sales totals, notwithstanding current economic conditions.

Kerosene

More activity has developed in the tank car market during the past week, and refiners are generally quoting 41-43 water white firm at 5 cents per gallon in tank car lots, f.o.b. refineries, although some stocks can still be had at 4¾ cents. The recent increases in Pennsylvania crude oil prices have bettered the position of the eastern kerosene market, and has forced up the tank car prices of some Pennsylvania sellers who have previously been cutting the market established by East Coast refiners on shipments into competitive areas.

With the exception of the advance of 1 cent per gallon in tank wagon kerosene prices throughout its territory, with the exception of Delaware, announced by Standard Oil Co. of New Jersey on September 14, tank wagon markets were quiet and unchanged during the period under review. Demand fell off materially during the early part of the week due to the record warm weather experienced in many sections of the East. Marketers, however, look for an early revival in demand and are optimistic on the question of fall and winter gallonage.

Gas Oil

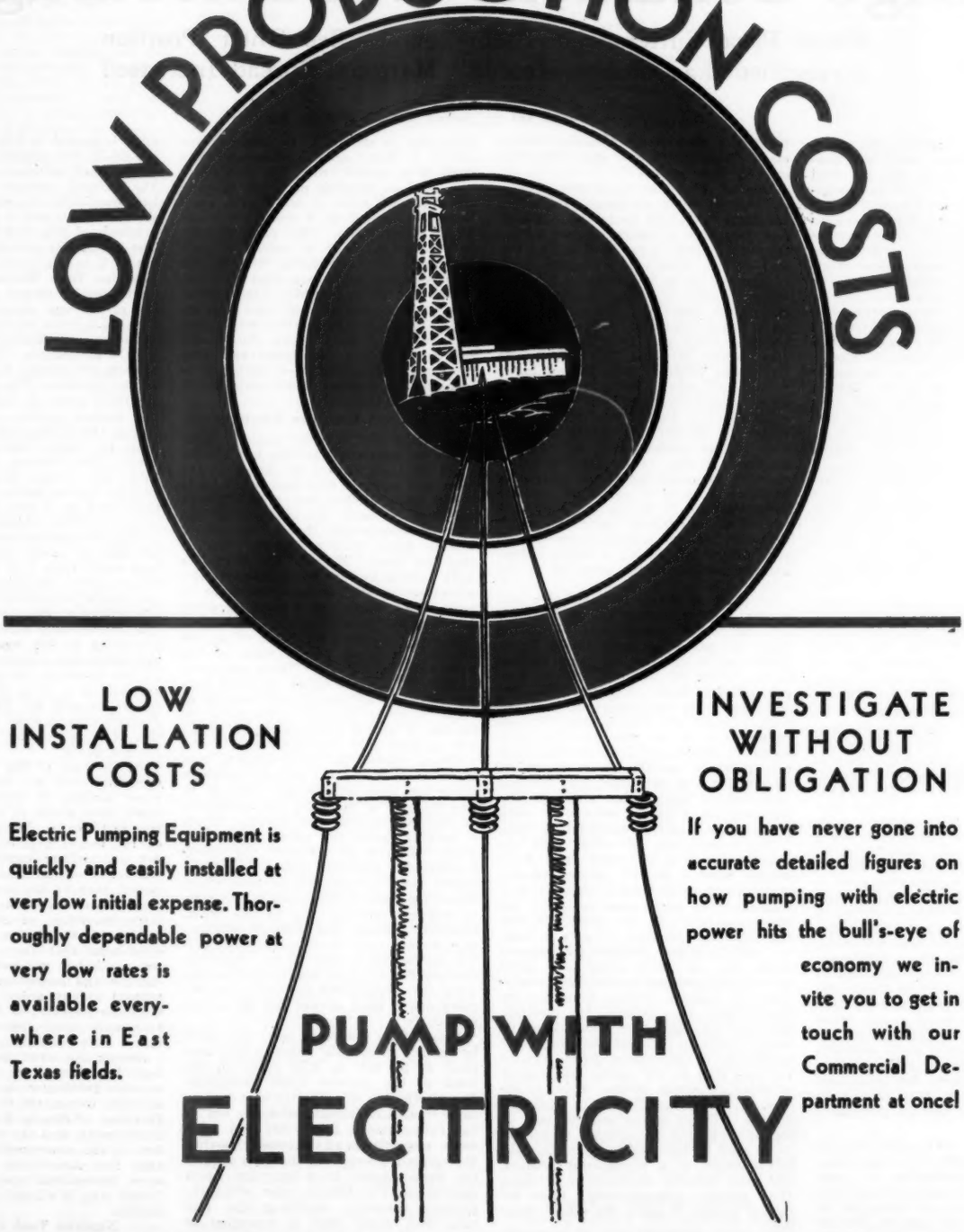
The market is working into better position locally, and refiners expect a firmer tone to develop shortly. The posted price for 28 plus recycled oil continues held at 4 cents per gallon, in tank car lots at refineries, but considerable spot business is still going through at 3¾ cents.

Shipments of gas oil from California and the Gulf are not expected to hold up to recent levels, and additional supplies from these points, it is believed here, will come forward at higher price levels than those recently prevailing, which should react to the advantage of the East Coast market.

Gas manufacturing companies are expected to increase their gas oil consumption when daylight saving ends shortly, while the start of the heating season will materially reduce refinery gas oil stocks, through shipments to jobbers for distri-

(Continued on Page 101)

LOW PRODUCTION COSTS



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SHREVEPORT, LA.

Chicago Conditions Not Encouraging

Retail Price Cutters and Their Sources See Their Position Strengthened as Markets Recede. Marginal Spread Increased

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, Sept. 21.—The future in Chicago district gasoline tank car markets Monday held little encouragement except for the retail price cutters and their sources who were seeing their position greatly strengthened as these markets receded in price without a response in the tank wagon and service station postings of the larger companies. Within the past few days the long contemplated prospects for betterment due to increasing tightness in the crude oil markets have been marred by several significant developments.

One refiner in the district, it is reported in trade circles, has notified a number of brokers and distributors that he will immediately double his runs to stills. Another refiner, whose plant is in East Texas, placed 50 cars in transit last week, and, according to the reports, this material is consigned to himself. That any remaining doubts as to the condition of these markets may be dispelled, it may be pointed out that one of the largest accounts in Chicago has invited tenders on 100 cars of gasoline and announces that it does not expect to pay more than 2½ cents for the material.

Marginal Spread Increased

That the declining open market quotations are not having the effect of enlivening the spot market activity may be attributed to two principal influences: The introduction by several larger companies, as well as others, of 6-cent marginal guarantees in their contracts, with alternatives of from one-quarter of a cent to three-eighths of a cent below the low of certain publications, and the fact that buyers have enough material in storage to enable them to "wait it out" and see how far the refiner will go to move his gasoline this late in the season.

Material taken on the contract giving a 6-cent spread is bought at 2.59 cents, Group 3, as the retail postings are 11 cents plus tax. The low for U. S. Motor in a daily publication selected is 3 cents, and three-eighths of a cent below this is 2.625 cents. It had not been ascertained whether any of these contracts provide protection for the seller in some form of stop price clause, but in at least one of these contracts, that of a large company, the refiner had no protection, apparently.

However, in view of the fact that in this territory there have been some notable examples of reductions in tank wagon and service station postings, it is scarcely believable that an important refiner would lay himself open to the extent that he will be selling his gasoline at 1.59 cents if the retail postings drop a cent, or 0.59 cent if the drop is 2 cents. One of the refiners mentioned in connection with these wide guarantees said a month ago that he had learned his lesson in the matter of marginal guaran tees and local price war protection in contracts, because if he had not managed to arrange new terms with his buyers he would have had to send a check along with each gasoline shipment. It is probable that great dependence is placed upon the ability of the third-grade gasoline to keep the regular grade at least on its present level.

New Specifications Hinted

It is practically a certainty that the regular grade of one of the largest refiners in the territory is soon to have an endpoint of 390°. It is likewise assured that the third-grade gasoline's endpoint will show a proportionate betterment. The initials are also to be lowered in these grades.

One of the most persistent rumors, and one in which somewhat substantiating facts have been found, is to the effect that this territory is soon to see the introduction of an X-70 as the regular grade. That is, the regular grade of gasoline is to be marketed with an octane number of 70 or better. These rumors are admittedly the outgrowth of an announcement last week that Ethyl Gasoline Corp. was permitting a Canadian refiner to blend Ethyl fluid with its regular grade to raise the antiknock value, and was offering similar contracts to other refiners in the Dominion.

In Chicago district the refiners declined to discuss the possibility that their regular grades would be raised in antiknock rating. However, one major operator indicated that he is preparing to follow a move of this kind, and reports that he is paying particular attention to his cracking operations in anticipation of an announcement in the near future introducing a higher octane number gasoline in the territory as the regular grade.

In Ohio, as shown in distillation and octane number rating tables in these columns several months ago, all of the major companies are marketing a 70 octane number gasoline as their regular grade. None of these, of course, contains Ethyl fluid. They are cracked gasolines with one exception, a blend containing 10 per cent benzol. It was pointed out at the time that the geographical differences between Ohio and this territory, in the main, accounted largely for the fact that the gasoline marketed as the regular grade in this territory has a considerably lower antiknock value than that marketed in Ohio.

The reports to the effect that the Ethyl grade will be raised from a 74 octane number to 78 octane number would seem to disclose a singular misconception of significant facts in the whole problem. To the casual observer the difference between 70 octane number and 74 octane number may appear slight, but in reality there is a great deal of difference not visible algebraically. There is a much greater difference between these two ratings, for instance, than between 60 octane number and 64 octane number. A more important consideration, a technologist points out, is the fact that in the automobile engines of today an octane number rating in excess of 74 is superfluous and therefore wasted. Higher octane numbers may be sought profitably in materials which are to be used in blending to raise the antiknock value of a straightrun product, and these blending naphthas or gasolines (low gravity, comparatively) often attain a rating of above 80 octane number.

Octane Numbers Capturing Trade

Cracked gasoline, long underestimated because of its gravity and color, is apparently coming into its own with grand eclat because of its superior value as a nondetonating motor fuel. A tour about some of the smaller service stations where a premium (non-Ethyl) grade is sold disclosed the fact that the station attendants in most cases have been well coached on the commendable properties of this fuel, although the more esoteric points in connection with octane number rating are sometimes given a bizarre interpretation. Developments that have been witnessed in the refining of cracked gasolines and the use of gum inhibitors have removed most of the obstacles in the way of raising the antiknock value of the regular grade of gasoline. However, current prices for premium gasolines of this type show only half a cent advantage in the tank car markets over the U. S. Motor grade. Those gasolines made from special crude oils, and which are listed as blending materials to raise the antiknock value of straightrun gasolines, are quoted at 3 cents above the U. S. Motor grade. This price is nominal, however, as it is understood that the supply of this blending material has been sold out for a long time to come, mostly to refiners in Ohio. Five cars of this gasoline are shipped into Chicago daily from Texas to be distributed from this point. The Chicago distributors said recently that the refiner supplying them with this material is planning to increase the capacity of his plant by at least 2,500 bbls. daily.

Tank Car Recession Continues

The tank car gasoline markets Monday were apparently moving steadily toward the lows marked up earlier in the year, but while it was thought probable in oil trade circles here that 2.75-cent gasoline was near, no one was of the opinion, apparently, that prices would weaken below that or remain long at that low level. Most of the marketers were looking forward to considerable improvement within the next two weeks in spite of the slackened demand expected for seasonal considerations. The fact that dollar postings for crude oil in the Mid-Continent are now a thing of the past, and that the East Texas situation, in spite of the late 40-bbl. per well output reduction ordered, is still such as to cause a great deal of nervousness in buying, is having a depressing effect on the gasoline tank car markets.

Prices quoted in these columns last week were changed but slightly, although there has been a moderate increase in the quantity of material, not enough to be representative of the markets, which is moving below the ruling prices. A wider differential between the 58-60 gravity, 437 endpoint material, and the higher tests is expected to take effect before the close of the month as the colder weather sets in. Up to this week, however, Chicago has enjoyed midsummer climate with the temperatures ranging around 90 in the shade. Saturday the city felt the first reminder of winter when the thermometer dropped a few degrees and a light shower fell for a few hours.

Some of the contracts made last week by refiners permit the buyer to take gasoline at as low as 2.59 cents on the basis of the current retail quotations. The alternative of a quarter of a cent to three-eighths of a cent below the low of the ruling prices, 2.75 cents and 2.625 cents, respectively, at the present posting, represents a greater cut than any seen in the open market in a quantity worth mentioning. The 100-car order which the gasoline company supplying the taxi cabs with motor fuel is expecting to place at 2½ cents or less, is for resale and the price to the jobber on this basis would be from an eighth to a quarter of a cent higher. The U. S. Motor gasoline Monday ruled at 3 to 3½ cents, with small quantities moving at as low as 2.75 cents. The 60-62, 400 endpoint material was an eighth of a cent higher at 3⅛ to 3½ cents.

Better High Test Demand Seen

Most of the distributors and brokers up to this time of year have looked upon the shipments of low endpoint material as special orders calling for prices somewhat out of line with the 58-60, 437°, and the 60-62, 400°, markets. The current prices do not give the higher tests a commensurate position in the structure, but it is expected that within a short time an increased demand for these materials will be reflected in better prices. The 64-66, 375 endpoint gasoline is quoted at 3⅜ to 3⅝ cents, and the 68-70, 360 endpoint material is moving in small volume at 3⅞ to 4¼ cents. The natural gasoline blend motor fuel has practically dropped out of view for the time being and a price, more or less nominal, of 2⅞ to 3⅛ cents is quoted. The 50-52, 450 endpoint naphtha is selling at 3 to 3¼ cents.

Gasoline Tank Wagon, Service Station

The service station price on the regular grade was reduced September 15, from 15.2 cents to 13.4 cents, including 3-cent tax, at Minneapolis by Standard Oil Co. of Indiana. The Stanolind Blue markets are normal at all but six points in the territory. The normal position of the third grade is now 1½ cents below the regular grade. At the following places the third-grade posting is more than 1½ cents below the Red Crown price: Des Moines, 11.9 cents; Sioux City, 10.9 cents; Evansville, 13 cents (service station only); Sioux Falls, 13.8 cents, and St. Louis, 9.9 cents.

Price Cutters Active

Trackage station operators have sprung up anew at every turn and their postings range from 1 to a little more than 2 cents below the third-grade postings of the major companies. The lubricating oils offered at these cut-price stations is still considerably higher than the prices prevailing at the numerous department and automobile supply stores in the city. At the trackage station lubricating oils are offered at 15 to 20 cents, while material branded as 100 per cent pure Pennsylvania can be bought in quantities of 5 gallons for as little as 12.45 cents a quart.

At the time of this writing the major companies had not indicated that they were thinking of reducing the price of their third grade to meet this competition in Chicago. More light was thrown on the means available to price cutters for underselling competition last week when one of the larger distributors reported that he had been approached by certain interests who wanted to buy large quantities of gasoline. The distributor offered the gasoline at 8.41 cents, explaining that the state gasoline tax was included as well as the freight charges and inspection fee. This buyer refused to buy unless he was entrusted with the payment of the state tax, and eventually went "elsewhere" where he had a more satisfactory reception.

Among the latest developments in the fight being waged in the district against gasoline bootleggers by the Gasoline Tax Evasion Committee of which Frank V. Martinek of Standard Oil Co. of Indiana is chairman, and the state attorney's office, is the announcement that the Chicago Bar Association has filed disbarment proceedings against a Chicago attorney who is alleged to have filed false reports.

Naphtha Tank Car Markets

Although no change is expected in the naphtha tank wagon markets in the territory, it has been indicated that the naphtha tank car markets may show some recession in the near future. The tank car markets today were: Oleum spirits, 6 cents; V. M. P. naphtha, 7.5 cents; cleaners' naphtha, 9 cents, and stanisol, 9 cents. These markets were reduced early in July.

Kerosene Markets

Kerosene tank car markets were dull and unchanged in price. At several points in the territory Standard Oil Co. of Indiana has posted special tank wagon prices on kerosene. At Des Moines the kerosene tank wagon posting was reduced from 9.3 to 8 cents; at Keokuk the reduction was from 9.3 to 6.3 cents; at Mankato the price was cut from 9.7 to 8 cents; at Indianapolis the cut was from 10.1 to 9 cents, and at Bartlesville,

Okla., the price was reduced from 7.5 to 7 cents. In the tank car markets the 41-43 water white kerosene Monday was 1⅞ to 2 cents, and the 42-44 water white material was 2 to 2⅛ cents.

Fuel Oils and Gas Oils

The fuel and gas oil markets have been holding up firmly in price in spite of the unseasonably warm weather and the slowness in industrial demand. Cracking stocks are reported scarce in the territory and one major refiner, at least, has found it impossible to obtain sufficient of this material to produce his cracked gasoline requirements. Chicago, Rock Island & Pacific Railroad officials announced here last week that the conversion of their coal-burning locomotives to oil burners now points to a saving of at least $1,500,000 a year in their fuel bill. The conversion of 230 locomotives to oil-burners is expected to be completed in February of 1932, according to the officials.

East Texas Not Yet Factor

In the fuel and gas oil markets the opening up of the East Texas area and the stepping up of production in the Mid-Continent fields has not yet had the effect of causing weakness and these markets are holding to the gains made when gasoline was climbing. With the first cool spell these products are expected to show real strength. Monday the fuel and gas oil markets were as follows: 18-22 fuel oil, per barrel, 25 to 27½ cents; 22-26 fuel oil, per barrel, 27½ to 32½ cents; 28-30 fuel oil, zero, per barrel, 45 to 47½ cents; 32-36 industrial gas oil, 1 to 1¼ cents; 32-36 zero gas oil, 1⅜ to 1½ cents, and 38-40 straw distillate, 1⅜ to 1⅝ cents.

EASTERN MARKET SHOWS STEADY FOR THE MOMENT

(Continued from Page 98)

bution on furnace oil contracts during the winter months.

Export Market

There was no change in the Gulf export situation during the week, and posted prices remained unaltered.

Integrated companies were moving out material to foreign marketing subsidiaries in fair volume, but no cargo business developed in the open market, Rumania and Russia continuing to undersell the United States Gulf in Europe.

Petroleum Exports

Irregularity again characterized the local export market during the past week. New business was along routine lines, and export buyers were still inclined to limit purchases to immediate requirements in most instances. Recent price advances have slowed down foreign demand to some extent, and there is a feeling among operators here that foreign buyers will remain out of the market as long as possible to test out present price ranges on major products.

Routine movement of refined products into export channels was in evidence locally during the week ended September 12. The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted:)

	Week ended—		
	Sept. 12	Sept. 5	Aug. 29
Gasoline	125,000	85,000	220,000
Naphtha	335,000	250,000	337,000
Kerosene	3,000	58,000	210,000
Fuel oil	2,000	170,000	65,000
Lubricating oil	2,070,000	1,605,000	1,540,000
Petroleum, refined	650,000	1,519,000	540,000
	Pounds		
Petrolatum		40,000	40,000
Paraffin wax	1,320,000	1,115,000	1,175,000
Refined		75,000	
Scale	50,000	220,000	575,000
Lub. grease	490,000	525,000	995,000

Atlantic Refining Co. is reported to have contracted with a British steamship line for the delivery of 400,000 cases of refined petroleum to Brazil, the contract to run over a period of months.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended September 12 totaled 1,071,000 bbls., a daily average of 153,000 bbls., compared with 1,825,000 bbls., a daily average of 260,714 bbls.. for the previous week, and a daily average of 185,964 bbls. for the four weeks ended September 12. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	268,000
Boston	30,000
New York	552,000
Philadelphia	64,000
Others	157,000
Total	1,071,000
Daily average	153,000
At Gulf Coast ports—	
Galveston district	82,000
Total	82,000
Daily average	11,714
At all United States ports—	
Total	1,153,000
Daily average	164,714
Daily average four weeks	185,964

Distribution of total imports is as follows:

Crude	542,000
Gasoline	264,000
Fuel oil	347,000

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended September 12 totaled 208,000 bbls., a daily average of 29,714 bbls., compared with 35,000 bbls., a daily average of 5,000 bbls., for the previous week, and a daily average of 34,964 bbls. for the four weeks ended September 12. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
New York	90,000
Philadelphia	118,000
Total	208,000
Daily average	29,714
At Gulf Coast ports—	
Total	40,000
Daily average	5,714
At Atlantic and Gulf Coast ports—	
Total	248,000
Daily average	35,428
Daily average four weeks	34,964

Distribution of total California oil receipts is as follows:

Gasoline	208,000

Charter Market

While the charter market continued fairly quiet, there were more inquiries reported, and indications pointed to a somewhat more active market during the closing quarter of the year.

Interest was reported shown in clean vessels, Gulf/Transatlantic, indicating an early revival in export trading in the gasoline and kerosene market at the Gulf.

The coastwise and intercoastal markets were quiet, and it is now believed that the large quantities of California gasoline recently reported sold for shipment from California to the Atlantic Seaboard will be moved in the tankers owned and operated by the companies involved.

Fixtures reported during the week were as follows:

Motorship Solstad (Norway), 7,200 tons maximum, clean, Trinidad to London, 7/-, October loading.

Steamer (British), 9,000 tons, clean, Gulf to South Africa, 13/-, October loading.

Steamer Dixiano (American), 2,613 net, molasses, Ponce, P. R. to New York, September loading.

KANSAS FIELDS

(Continued from Page 42)

son, C NW NW, Section 5-33-5, has been abandoned at 696 feet. Smith and others' No. 1 Johnson, SE cor. SW, Section 6-33-5, is dry and abandoned at 660 feet.

McPherson County

Lario Oil Co. and Shell Petroleum Corp. made location for No. 2 Miller, NW cor. SE, Section 24-19-2w. No. 1 Gratton, NE cor. SW, Section 24-19-2w, is also a location. Smith & Ash and Shell Petroleum Corp.'s No. 1 Kaegi, NW cor., Section 21-19-1w, has been completed for 20,778,000 feet of gas in chat 2,904-63 feet. Emrick and others' No. 1 Severtson, NW cor. SE SE, Section 9-19-2w, made 120 bbls. in chat 2,941-53 feet.

Reno County

Palmer and Phillips Petroleum Co. and others' No. 1 Goering, NW cor. SE, Section 1-23-4w, has been deepened to 3,376 feet and completed for 165 bbls.

Rice County

Muth Brothers' No. 1 Beyers, NE cor. NW, Section 21-19-9w, is preparing to deepen. No. 1 Freeman, SE cor., Section 4-21-6w, has been completed for 30 bbls. at 3,511 feet.

Rush County

Mid-Kansas Oil & Gas Co. is building the rig for No. 1 Mohr, C NW, Section 14-18-16w.

Russell County

Stearns & Streeter and Hall's No. 1 Miller, SW cor. SE SE, Section 30-14-13w, has been drilled to 3,090 feet and cement is now being drilled at 2,990 feet.

Stevens County

Colorado Gas & Utility Corp.'s No. 1 Wrench, C SE, Section 27-31-38w, has been completed for 16,600,000 feet of gas in sand 2,495-2,601 feet.

LA.-ARK. FIELDS

(Continued from Page 45)

with interest as it is a few miles north of the Plain Dealing Oil Corp.'s No. 1 Nattin, Section 15-22-14, which recently was completed flowing by heads from 2 to 10 bbls. daily. The Exchange Petroleum Co. has spudded in on its No. 1 White & Grandin, Section 29-3n-7w, in Vernon Parish. This company has assembled a large block in that vicinity and it is reported will make a deep test, unless pay is found at a lesser depth.

Daily Average Runs

The daily average runs from the several pools were:

NORTH LOUISIANA	Bbls.
Caddo, light	6,155
Caddo, heavy	1,555
Homer	2,800
Haynesville	4,900
DeSoto and Red River	2,255
Elm Grove	395
Cotton Valley	350
Urania	3,220
Pleasant Hill	350
Sarepta-Carterville	875
Zwolle	6,465
Holly	395
Total North Louisiana	29,715
Total previous week	29,880
Decrease	165
ARKANSAS	
El Dorado	3,190
Smackover, light	3,190
Smackover, heavy	26,760
Stephens	640
Nevada	1,100
Lisbon	610
Champagnolle	2,195
Urbana	360
Total Arkansas	38,045
Total previous week	38,095
Decrease	50
Total both states	67,760
Total previous week	67,975
Decrease	215

OKLAHOMA FIELDS

(Continued from Page 41)

Corp.'s No. 1 Egermeier in SW cor., Section 23-11-3w, and same company's No. 1 Glendale, NW cor., Section 26-11-3w, the south offset to the extension well.

Tom Slick Oil Co.'s No. 6 Classen-Edwards, SW cor. SE SW, Section 3-11-3w, in the north end of the Oklahoma City Field, was completed flowing 4,494 bbls. of oil in three hours before being shut in. The gas volume was estimated at 30,000,000 feet a day. The oil and gas were found in the Wilcox sand at 6,348-6,517 feet.

Leasing in Oklahoma County

Leasing activity has increased during the week in the Oklahoma City Field since there is a possibility of opening and producing the wells in the field. The acreage is located on the southwest edge of the field and on the north edge. It is reported that several large deals are pending on the west side. Some express the opinion that the producing area may be extended on the west side of the field and operators are securing protection in the area.

The following lease trades were reported during the week from Oklahoma County: Carter Oil Co. has a three-year lease on Lots 13 and 14 of Block D, and Lots 31 and 32 of Block I in Section 12-12-4w. The same company has secured a lease on Lots 31, 32, 37 and 33 of Block 3 and Lots 19, 20, 34 and 35 of Block 7, and Lots 27, 28, Block 7, of Lake View Park Addition. The Prairie Oil & Gas Co. has leased the NW Section 20-13-2w. F. E. Harper has leased Blocks 6, 7, 8, 9, 10 in the South Oklahoma City addition.

Shipping Seminole Stocks

Oil from storage tanks in the Greater Seminole area is being shipped out in larger quantities during the last month while flush fields have been shut down.

In Shallow Fields

Considerable activity is expected to develop in the southern and eastern parts of the State. Another gas well was added to the Jolly Pool in Muskogee County. C. C. Walchob's No. 1 Benge, SW cor. NW SW NW, Section 9-15-18, Muskogee County, was shut in for 10,125,000 feet of gas a day from the Wilcox sand at 1,572-85 feet. The well which is located in the center of an oil field, is the largest gas producer yet completed in the field, located northwest of Muskogee. Previous to the completion of this well, the largest in the pool, made 8,000,000 feet of gas a day. The next well expected to reach the pay horizon is R. A. Godfrey's No. 1 Benge, NE cor. SE NE, Section 1-15-18, which found 1,000,000 feet of gas a day in sand 1,280-88 feet and was drilling deeper at 1,565 feet.

The Jolly Oil Corp.'s No. 2 Brown, NE cor. NE, Section 8-15-18, found a dry sand at 1,604-22 feet and was drilling deeper at 1,650 feet. About a mile southwest of the producing area Simpson & Spence's No. 1 Sango, SW cor. NW NW, Section 17-15-18, was spudding. C. C. Walchob's No. 2 Benge, NW cor. SW NW, Section 9-15-18, topped the sand at 1,571 feet and was fishing for tools at 1,580 feet. The test was estimated to be making 3,000,000 feet of gas a day.

The only test drilling in Murray County, in the southern part of the State, is Capital Producing & Refining Co.'s No. 1 Cutch, SE cor. NE, Section 6-1-2, which was coring a sandy shale at 1,950 feet after finding a showing of heavy oil at 1,875-77 feet. The owners expect to find a gas sand at 2,100-2,200 feet. The test is a wildcat and is located on a block of 1,200 acres of leases.

In Stephens County the Duncan-Falls Pipe Line Co.'s No. 7 Tucker-Dexter, NE cor. SE SE NW, Section 34-1s-8w, is an old gas well being drilled deeper, the total depth of the test being 1,976 feet in sand and shale.

H. J. Brown and others' No. 1 Hightower, SW cor. SE NE, Section 15-3s-5w, Stephens County, was showing oil from a total depth of 1,000 feet.

J. C. Chambers and others' No. 1 M. Dare, SE cor. NW SE, Section 2-2s-8w, was drilling deeper at 1,020 feet after finding a showing of gas at 1,010-12 feet.

Murray Petroleum Co.'s No. 1 Wilkerson, SE cor. NE SE, Section 8-1s-5w, is a new location, and material was moving out to complete rig.

Seminole Production

The production from the Greater Seminole area for the week ending September 17 was approximately 66,375 bbls. The first 12 pools listed below comprise the Seminole area, which average 42,630 bbls.

Pool—	Bbls.
Little River	9,580
East Little River	1,515
Carr City	5,485
Maud	1,025
Mission	1,905
Bowlegs	4,845
Earlsboro	9,275
East Earlsboro	2,040
South Earlsboro	2,815
Seminole	1,035
East Seminole	860
Searight	2,250
Total	42,630
Allen	3,210
Asher	365
Wanette	1,820
Konawa	1,210
Sasakwa	3,285
St. Louis-Pearson	13,855
Total	66,375

Beckham County

Heiden and others' No. 1 Montgomery, NE cor. NW, Section 15-9-23w, has been abandoned at 3,455 feet.

Creek County

The Texas Company has a machine on the location for No. 7 Weaver, NE cor. SE, Section 13-19-8. Magnolia Petroleum Co.'s No. 1 Talomasse, SE cor. NW NE, Section 3-16-7, is rigging up to deepen

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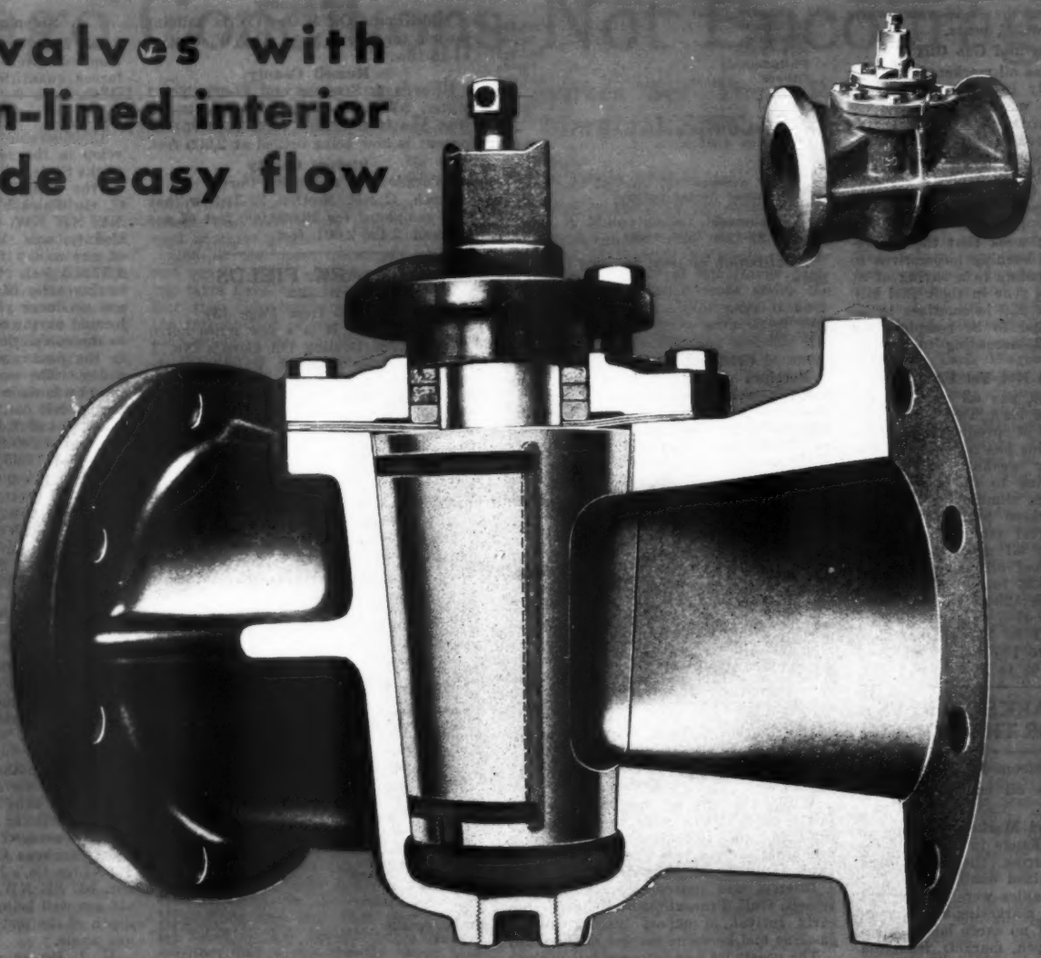

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om 2,830 feet. Cal-Cul Oil Co. has the g up for No. 1 Holleyman, SE cor. E SE, Section 18-14-7. M. S. Hughes' o. 2 Flinchin, NE cor. SW SW, Sec- on 11-19-9, has been completed for 90 bls. in sand 2,382-84 feet. A. A. Bailey nd others' No. 1 Weaver, NW cor. SW, ection 18-19-9, made 140 bbls. in sand 211-37 feet, total depth 2,249 feet. Cen- al Commercial Oil Co.'s No. 2 Char-Co- e-Tan-Ha, NW cor. NE NE, Section 17-10, has been completed for 250,000 et of gas in sand 1,047-57 feet, total pth 1,078 feet. W. S. O'Hair and hers' No. 1 Barnett, NE cor. NW SW, ection 14-16-10, is dry and abandoned 3,065 feet. F. R. Billingslea's No. 1 Wilson, SW cor. SE SW, Section 15-15- has been abandoned at 3,868 feet.

Lincoln County

Hilton Phillips and others moved the g in for No. 1 Phillips, SW cor. NW, ection 2-14-3.

Muskogee County

K. D. Valentine and others' No. 1 New- n, C SE SE, Section 9-13-18, has drilled 603 feet and shut down. H. L. Jolly nd others' No. 2 W. Brown, NE cor., ection 8-15-18, has been abandoned at 710 feet.

Oklahoma County

Phillips Petroleum Co.'s No. 1 Rock land, SW cor. NW SW, Section 35- 2-3w, Oklahoma City Pool, is a rig. rgood and others' No. 1 Levi, SW cor. W NW SE, Section 15-11-3w, is a cel- r. Indian Territory Illuminating Oil o. made location for No. 1 South Glen- ale, NW cor., Section 26-11-3w. No. 1 ittle, NE cor., Section 27-11-3w, is a ellar. Champlin Oil & Refining Co., nd Hall & Briscoe's No. 4 Central, SW or. NW SE, Section 3-11-3w, has been ompleted for 3,381 bbls. in four hours rom Wilcox sand 6,289-6,402 feet, total epth 6,406 feet. Phillips Petroleum Co.'s o. 1 Qualls, SW cor. NW NE SW, ection 10-11-3w, made 7,170 bbls. in 0½ hours from total depth of 6,530 eet. Eason Oil Co.'s No. 1 Rodesney, W cor. SE, Section 15-11-3w, flowed ,938 bbls. in six hours from Wilcox nd 6,424 feet, total depth 6,524 feet.

Okmulgee County

Mack Drilling Co.'s No. 1-A L. An- erson, SW cor. NE NE, Section 36-16- 4, is spudding. Sheldon & Staples made ocation for No. 6 Skelton, NE cor. NW W SE, Section 15-13-12. Jordan and thers moved a machine in for No. 3 . Anderson, NW cor. NE NW NE, ection 28-12-14.

Pawnee County

T. E. Harris and others' No. 1 Twedy, E cor. NE NW, Section 14-20-9, has rilled to 400 feet and now repairing the g. Burton & Holmes' No. 1 Cunning- am, CEL NW SW NE, Section 18-20- 0, is a machine moving in.

Pittsburg County

J. E. Weible's No. 1 T. R. Mattox, NE cor. SW, Section 5-8-16, is rig- ing up.

Oklahoma City Shipments

The total shipments from the Okla- oma City Field for the week ending Sep- ember 19 were 74,770 bbls., an average f 10,580 bbls. a day. The shipments by ompanies were as follows:

Company—	Bbls.
Champlin	6,068
Continental	1,712
Empire	6,809
Magnolia	11,113
Oklahoma	1,840
Prairie	1,137
Stanolind	31,964
Sinclair	6,525
Wilcox	1,265
Sealdton	2,015
Anderson-Prichard	1,482
Operators	2,840
Total	74,770

The daily production and pipe line hipments from the Oklahoma City Field or the week ending September 19 were s follows:

Date—	Prod.	Wells	Shipments
September 13	7,536	11	5,361
September 14	1,538	8	5,672
September 15	2,077	12	8,525
September 16	1,479	9	14,869
September 17	2,461	12	14,319
September 18	4,813	8	14,992
September 19	3,345	9	6,296

ROCKY MOUNTAIN AREA

(Continued from Page 50)

it was completed several months ago. It is approximately one-third of a mile to the northwest of the Midwest well and half a mile to the east and south of the Continental Oil Co.'s No. 3-B State, CNL SW, Section 33, which was completed nearly a year ago. The Continental's No. 3-B State had a potential of 16,718 bbls. of oil and 50,000,000 feet of gas per day, and Midwest's No. 29 Turner was given a potential of 19,400 bbls. The results in the two completed wells point to some more big producers in that territory. The Gypsy well will call for an offset on the west by the Continental company and another on the south by the Midwest.

The only other active operation in Lea County is Culberson & Conrad's No. 1 State, C NE, Section 22-18-34, in the Caprock area. It is drilling out plug after cementing the 6⅝-inch at 3,600 feet to shut off water at 3,360-75 feet.

Eddy County

Flynn, Welch & Yates' No. 60 State, SW cor., Section 5-19-28, Artesia area, is drilling at 1,890 feet in lime. It topped the lime at 1,820 feet and had a show of gas at 1,850 feet.

Oil Well Drilling Co.'s No. 1 Baker, SE NE NE, Section 21-21-26, Carlsbad district, ran tubing to bottom with packer at 1,010 feet. The hole was full of water at a total depth of 1,115 feet.

Guadalupe County

New Mexico Producing & Refining Co., Ltd.'s No. 1 McMillan, SW cor., Section 24-5n-16, Mesa Leon district, is drilling at 2,245 feet in sandy lime.

Bernalillo County

The first drilling to take place in this county for some time has been started in the Norins Realty Co., Inc.'s No. 1, NW cor. NE, Section 22-9n-1e, on the Pajarito grant, southwest of Albuquerque. It spudded on August 19 and is drilling below 185 feet. The surface is Quarternary and the Pennsylvanian is the objective.

Chaves County

Warman Oil Trust's No. 1 Evans, N half, Section 15-14-25, Blackdom area, is drilling below 280 feet with the 10-inch at 275 feet.

San Miguel County

Starr Oil Co., Ltd.'s No. 3 Adams, NE cor., Section 27-17-17, Graham district, has resumed after running casing to 4,775 feet. At this depth it had a good show of gas with a little oil and the bottom was cemented off to protect the sand from water until a string of casing could be run and set.

San Juan County

Continental Oil Co.'s No. 24, SW NW SW, Section 1-29-19, Rattlesnake Dome, the second Pennsylvanian test on that structure, is drilling below 4,924 feet. Rig is being built for its No. 25, Section 2-29-19.

R. C. Oswell's No. 2, NW, Section 34-30-11, near Aztec, is drilling below 680 feet.

WYOMING

Crook County

Northwest Gas & Oil Co.'s No. 1, NW cor., Section 6-54-60, Oak Creek, 3 miles west of the South Dakota boundary, is moving in machine. This company undertook the test following investigations of two oil springs on the Chan Mowery land made by R. P. Harmon.

Niobrara County

Indian Petroleum Co.'s No. 1, NW NE NE, Section 7-35-66, Lance Creek, is bottomed at 4,175 feet and is underreaming the 4¾-inch 80 feet above the iron in the hole.

Weston County

One completion was reported in the Osage Field in Bradley-Manewal's No. 10, CEL SE NW, Section 20-46-63, which found the sand 1,264-68 feet and will make 20 bbls. per day on the pump. Riggs Oil Co.'s No. 1, SE cor. NE, Section 16-46-64, is drilling at 2,850 feet, and Tom Don and others' No. 3, NW SW SE, Section 23-36-64, is drilling at 1,200 feet. Chadron-Osage Oil Co.'s No. 14, SE cor. SW, Section 14-46-64, set casing at 900 feet and is waiting, and Central Oil Co.'s No. 1, NW cor., Section 26-46-64, is resetting casing at 1,300 feet. Carl Cundy's No. 2, NW NE NE, Section 31-36-64, is drilling at 400 feet, and Clark and others' No. 1 NW NE NE, Section 15-46-64, is rigging up. Sandell and others' No. 1 SE SW SE, Section 12-46-64, is rigging up.

Outside of the Osage district, Julius Peters and others' No. 1 Witzell, SE cor. NW, Section 30-46-64, Fiddler Creek, set the 8¼-inch at 1,800 feet and is drilling ahead. Gose Oil Syndicate's No. 1, NE cor., Section 28-47-63, Soda Creek, is shut down for new cable at 5,300 feet.

Converse County

Phillips Petroleum Co. is completing its twelfth core hole on the Shawnee structure, where it has been working out the geology for some time. Several of the holes showed oil and gas in the core in the Hygiene sand at shallow depth. A deep test probably will be drilled. One hole, estimated at 1,000,000 feet per day, is in Section 27-32-69. The acreage was assembled by Robert G. Taylor and assigned to the Northern Oil Co., which in turn subleased to Phillips. Several companies, including the Ohio Oil Co., with 5,300 acres, and the Reiter-Foster Oil Co., have holdings on the structure. This area is attracting more attention since the discovery of oil in the Julesburg Basin on the Colorado side.

Robert W. Eggert, consulting geologist for the Benzol Corp., of Chicago, which is drilling jointly with Otto Olston and others in their No. 1 Carey, Section 6-32-74, Box Elder Basin, has been looking over the properties. Following the completion of No. 1 Carey, a test will be drilled on the Tom Brubaker ranch to go to the Tensleep and Madison. Another then will be put down on the Balsley ranch. Other locations are on the Morton and Hamilton ranch. The extreme locations are about 10 miles apart, indicating the extent of sturcture that is to be explored.

Natrona County

Midwest Refining Co.'s No. 11 Middy, C NE NE, Section 23-35-79, Midway Dome, is bottomed at 5,940 feet and milling on lead plug. Wyoming Imperial Oil Co. (W. B. Look, James Hayes and others) is moving in for No. 1 Quintet Oil, NW SE, Section 13-33-79, Country Club structure, near Casper.

Park County

Resolute Oil Co.'s No. 1, NE SW NE, Section 17-57-101, Badger Basin, is making 90 bbls. per day from the Frontier at a total depth of 8,725 feet through a flow bean on top of the 4¾-inch casing. It is flowing by heads. Tubing will be run in an effort to increase production. Midwest Refining Co.'s No. 24 Rosenberg, NE SE NE, Section 26-58-98, Frannie Dome, is drilling at 2,140 feet in gray shale.

Washakie County

Ohio Oil Co.'s No. 1 Strothers, SW SE NW, Section 19-45-92, Neiber Dome, is reported somewhat disappointing in the second Frontier sand which showed a little water and some gas. Coring is in progress below 7,399 feet.

Big Horn County

Utah Southern Oil Co.'s No. 3 Government, NE cor. SW, Section 29-56-97, Garland Dome, is rigging up to re-run tubing for final test and permanent installation. The well is bottomed at 4,326 feet in the Madison lime and in previous tests through tubing made 1,500 bbls. of oil and 25,000,000 feet of gas, the latter with a pressure of 1,540 pounds. The oil tests 20 degrees gravity. This well extended the proven area of the field in the Madison lime 1 mile to the northwest.

Carbon County

Midwest Refining Co.'s No. 27 Union Pacific, NW SE SE, Section 11-20-81, Elk Mountain, is bottomed at 3,815 feet and is cementing off cave with 10 sacks. Prairie Oil & Gas Co.'s No. 1, SE cor. SW, Section 29-27-89, Bunker Hill, is drilling at 4,750 feet in blue shale.

Fremont County

Producers & Refiners Corp.'s No. 10, NE NW SW, Section 14-32-95, Big Sand draw, is rigging up cable tools to complete. Total depth was 5,345 feet and it has been plugged back to 5,100 feet. It probably will be completed as a gas well in the upper Frontier.

Lander Corp.'s No. 2, NW cor. NE, Section 35-33-99, Bartram Gap, is drilling at 1,850 feet.

Kinney-Coastal Oil Co.'s No. 1 Chatterton-Weeks, C SW NE, Section 22-3n-1w, Pilot Butte, is drilling at 3,302 feet in bentonite and lime. The Muddy, the first objective, is expected at around 3,600 feet.

The Illinois Pipe Line Co. has resumed running oil from the Pilot Butte Field where about 10,000 bbls. of storage has been built up. The production is owned by the Kinney-Coastal Oil Co. and the Argo Oil Co.

Ward Oil & Gas Co.'s No. 1, NE cor., Section 28-34-90, Dutton Basin, is delayed at 2,200 feet by bentonite which swells in the hole and necessitates considerable cleaning out.

Uinta County

Park City Oil & Gas Association's No. 1 Christensen, NE cor., Section 6-15-113, Lyman district, is drilling at 2,800 feet.

MONTANA

Carbon County

Ohio Oil Co.'s No. 1 Chapman, C SW SW, Section 2-7s-21, Dry Creek, is drilling at 4,475 feet. Its No. 2 Montana Industrial, C NW NE, Section 11-7-21, and No. 2 Souders, C NE SW, Section 2-7-21, have cellars completed. Carbon Oil & Gas Co.'s No. 1 Armstrong, SW cor. NW, Section 7-7s-22, is coring at 4,793 feet and is still in the second Frontier which is showing considerable gas. This well is about a mile east of the nearest producer.

Glacier County

The L. B. O'Neil operations in the Cut Bank Field are as follows: No. 1 Reickhoff, SE cor. NE, Section 3-34-6w, rigging up. No. 1 Cummings, C SW, Section 22-36-5w, an operation not heretofore reported, is spudding at 250 feet. No. 2 Michaels, C SW NE, Section 33-36-5, cemented the 6¼-inch at 2,750 feet. No. 1 Peterson, C, Section 21-35-5, is drilling at 1,650 feet. No. 1 State, C NE, Section 9-35-5, is drilling at 2,150 feet after cementing the 10-inch at 2,055 feet. No. 1 Teterud, C SE, Section 35-36-5, is drilling at 2,500 feet. No. 1 Tetrug, CSL SW, Section 26-36-5, is drilling at 2,000 feet. No. 1 Whetstone, C SE NW, Section 10-35-5, is spudding at 325 feet.

R. C. Tarrant's No. 1 Hogland, NW cor. SW, Section 13-34-6w, is rigged and ready to spud.

Fulton Petroleum Co.'s No. 1 Blackfeet, SW NE NE, Section 28-36-12w, Milk River district, is drilling at 2,710 feet.

Liberty County

California Co.'s No. 1 Eleanor, SE SE, Section 11-33-6e, Utopia district, is drilling at 3,244 feet, and Liberty Gas Co.'s No. 1 Corwin, C SW SW, Section 12-36-5w, Bear's Den, is spudding.

Teton County

Trans-American Oil Co.'s No. 1 Lackey, SE NE NW, Section 28-24-8w, Teton district, is shut down at 920 feet in the Madison lime and will not resume until spring.

California Co.'s No. 1 Sullivan, NW NE NW, Section 34-27-7w, Bynum district, is bottomed at 1,924 feet and drilling by bit.

Toole County

Oregon Oil Syndicate's No. 1, SW NE SE, Section 20-36-2e, Barthelote district, is drilling at 650 feet.

Marimont Petroleum Co.'s No. 1 Dunham, NE NW SW, Section 1-33-1w, Kevin-Sunburst Field, was plugged back from the Ellis-Madison at 1,520 feet and completed in the Sunburst at 1,230-53 feet for 6,000,000 feet of gas. The lower horizon carried water. Same company's No. 2 Dunham, CWL SE NW, Section 1-33-1w, has rig up. Arronow Oil Co.'s No. 2 Ellington, CSL NW SW, Section 14-35-3w, is spudding.

Rosebud County

Prairie Oil & Gas Co.'s No. 1-XX, Contr. 3, NE SW NW, Section 26-10n-39, is drilling at 2,540 feet in red rock. While several wells have been drilled on this structure in an effort to test formations below the Kootenai, this is the first

to get through that horizon on account of the heavy water pressure. It is being drilled with a rotary. The Porcupine Dome is one of the largest in Montana.

UTAH

Utah Southern Oil Co.'s No. 1 Balsey, C NE NE, Section 31-23-21, Salt Valley, is bottomed at 3,500 feet and cleaning out at 3,438 feet with 1,900 feet of oil in the hole. Diamond Oil Co.'s No. 1, SE NW, Section 16-8s-5e, Utah County, is drilling at 3,375 feet in hard lime.

ARIZONA

Benedum-Trees' No. 1 Arzberger, NW cor. SE, Section 19-15s-26, Cochise County, is bottomed at 3,140 feet with the 10-inch set at 2,348 feet and 4,000 feet of 8¼-inch on the rack. The San Simon test in SE cor. NE, Section 27-13-30, is bottomed at 4,230 feet in lime and will underream the 6¼-inch to 4,160 feet to shut off water. It has a show of oil below the water.

Pipe Line Runs

Average daily pipe line runs in week ending September 19:

WYOMING

	Bbls.
Salt Creek	24,010
Big Muddy	1,750
Byron	....
Dallas-Derby	310
Dutton Creek	....
Elk Basin	690
Ferris	20
Frannie	290
Grass Creek	2,060
Greybull	....
Hamilton Dome	920
Hudson	320
LaBarge	1,110
Lance Creek	290
Lost Soldier	2,860
Lovell	....
Oregon Basin	1,220
Osage	1,180
Pilot Butte	40
Rock River	1,790
Poison Spider	220
Simpson Ridge	50
South Casper	....
Teapot	10
Warm Springs	....
Total Wyoming	39,150

MONTANA

Buckley-Border	550
Cat Creek	940
Dry Creek	400
Kevin-Sunburst	4,260
Lake Basin	70
Pondera	1,340
Total Montana	7,560

COLORADO

Florence	340
Fort Collins	340
Iles	1,000
Moffat	400
Orchard	420
Rangely	20
Tow Creek	340
Walden	....
Total Colorado	3,560

NEW MEXICO

Rattlesnake	810
Hogback	520
Table Mesa	70
Artesia	309
Cap Rock	597
Getty	....
Hobbs	36,948
Jal	1,152
Lea City	1,843
Eunice	495
Total New Mexico	42,744
Total Rocky Mountain area	92,014
Total previous week	91,150
Difference	1,864

GEOLOGISTS MAKE NEW REPORT ON TIOGA AREA

(Continued from Page 37)

of the most recent gas field in the United States gets production from the same sand, the Oriskany, but at far different depths. On the New York side the sand in the Wayne-Dundee Field can be quickly drilled because it lies at varying depths above 1,800 feet, while on the Pennsylvania side of the field it lies below 4,000 feet. The wells on the Pennsylvania side of the field are much the larger producers, initially. The field has not yet been given a good test as to whether or not it will be long lived, but the fact that companies headed by thoroughly experienced gas men are constructing long and expensive transportation lines and reaching out to distant cities for markets indicate that they are confident that the investment will pay.

Doctor Ashley's Report

Dr. George H. Ashley, Pennsylvania state geologist, in his most recent report on the Tioga, Pennsylvania Field, where thus far the biggest gassers have been found, says that several geologists employed by the state survey have devoted the summer months to tracing the anticlinal areas of Tioga and Bradford Counties, the latter county lying just east of Tioga, and not to be confounded with the Bradford oil field, which lies in McKean County, two counties west of Tioga.

Doctor Ashley says: "Locally the positions as worked out in the field are some distance from those previously reported. Of special interest is the condition, described by Geologist Cathcart, that most of the anticlinal 'highs' have high dips or evidences of faulting south of the axes of these points. The practical result of this is to decrease the probability of finding gas in those highs.

"The question is often asked: 'Taking account of all the facts learned to date, what appears to be the future of this (Tioga) field?' That question cannot be answered yet with any degree of certainty, owing to the slow progress of drilling, especially of some of the wildcat wells. Dry and productive wells are still running each other a close race. At the time this is written, productive wells are still confined to the Sabinsville axis with but slight extension of the field as outlined last February. On the contrary, the number of dry holes within the boundaries of the productive area has proved rather discouraging.

Life of the Field

"To the question 'Is the field likely to be long lived?' one can only reply that that it is not possible to tell until the gas is turned into some of the large pipe lines now being built, and the effect on the rock pressures has been studied. At several points large wells have come in close together. It is uncertain whether the wells of a group all penetrate the same body of gas and will divide it up when drawn on, or whether they are in separate pools and will deliver gas to the pipe lines at their reported capacities. The fact pointed out by Mr. Fottke that the gas is probably contained in cavities in the rock rather than in the pore space suggests short lived wells.

Increase in Depth

"Attention should again be called to the rapid thickening of the rocks from northwest to southeast, as many people appear to be overlooking this point. For example: According to the Elkland-Tioga folio, the top of the Chemung group at the Ackley well is 2,250 feet above the tide. As that well started at 1,734 feet above tide and reached the Oriskany at 5,083 feet, it is about 5,600 feet from the top of the Chemung to the top of the Oriskany on the Sabinsville anticline in Tioga County. By contrast the same beds are 6,450 feet thick at Altona, 6,969 feet at Lock Haven and 9,800 feet at Mauch Chunk. On the Genesee River to the northwest the same beds are only 4,400 feet thick.

"To this must be added that on the anticlines south of the Sabinsville, the surface rocks lie somewhat higher in the section than in the present productive area. Thus, whereas, the top of the Chemung, if restored, would be from 2,600 to 3,300 feet above the tide in the productive area, the same horizon would be only 1,800 to 1,900 feet above the tide along the Wellsboro anticline. Therefore, wells on the Wellsboro anticline, although starting at the same elevations as those at Farmington or Lawrence Townships would have to be from 700 to 1,499 feet deeper to reach the same sand.

"Going southwestward the depth increases still more, because the surface rocks are higher in the geologic column. In Lycoming County the surface rock along the anticlines is the Pocono sandstone; consequently, in that county wells on the anticlines must penetrate to the bottom of the Pocono (1,175 feet) all of the Catskill (900 feet) and all of the Chemung. In Clearfield, Clinton and Cameron Counties wells on the anticlines that start on the hills must penetrate some or all of the Pottsville and all of the Mauch Chunk, which may range in thickness from a few feet to several hundred feet.

Anticlinal Comparisons

"Another question frequently put to this writer is, from the standpoint of the theoretic occurrence of natural gas, how does the Sabinsville anticline compare with the more southerly anticlines in the probability of containing gas. The only basis for an intelligent answer to that question is the known percentages of gas found in the coals of the several areas. These percentages indicate the extent to which the gas in the same sections of rocks has been preserved. Coal occurs in the Blossburg, Barclay, Bernice and northern anthracite fields. In the Blossburg Field the voltaile matter in the coal is about 20 per cent; in the Bernice Field about 9 per cent; in the Barclay Field about 18 per cent; in the Northern Antracite Field from 2 to 7 per cent. Taking account of this decline in the percentage of gas in the coal beds, geologists in general would consider that the chance for gas in the underlying rocks probably decreases from the Sabinsville anticline southwestward.

NORTH AND WEST TEXAS

(Continued from Page 32)

trol and prorate oil fields. A new organization was formed to be called the Panhandle emergency committee, with J. H. Clark of the Stanolind Oil & Gas Co. chairman, Robert Lynn of the Phillips Petroleum Co., vice president, and Hugh Alspaugh of the Dixon Creek Oil Co. as secretary.

Mark Finston, trustee's No. 2 Morse, top pay 2,445 feet, total depth 2,500 feet, plugged back to 2,490 feet, shot 170 quarts, initial production 85 bbls.

Humble Oil & Refining Co.'s No. 1 Hughey, top pay 2,555 feet, initial production 29,000,000 feet of gas, total depth 2,749 feet.

COMPLETIONS IN WEST TEXAS

Clyde Bradford's No. 1 York, top pay 2,313 feet, initial production 15 bbls. per day, total depth 2,503 feet.

COMPLETIONS IN NORTH CENTRAL TEXAS

Archer County

Bridwell Oil Co.'s No. 19 Oil Investment, temporarily abandoned, total depth 2,329 feet. George W. Cooper's No. 1 Bridwell, dry and abandoned, total depth 2,321 feet. Fraser and others' No. 2 Coleman, dry and abandoned, total depth 2,324 feet. Lindsey Drilling Co.'s No. 1 Wilson, oil sand 2,214 feet, estimated flowing 325 bbls. through one-half inch choke, total depth 2,220 feet. McKanna and others' No. 1 Edwards, dry and abandoned, total depth 3,771 feet.

Throckmorton County

Cumley's No. 1 Keeter, temporarily abandoned.

Wichita County

Jack H. Martin's No. 1-A Logan, total depth 3,933 feet, plugged back to 2,899 feet, oil sand 3,854-55 feet, initial production 40 bbls. oil and 30 bbls. of water.

Wilbarger County

Waggoner Refining Co.'s No. 1 Waggoner, dry and abandoned, total depth 4,940 feet.

Young County

F. E. Butler's No. 1 Howard, dry and abandoned, total depth 800 feet. J. J. Moran's No. 4 Howard, oil sand 904-14 feet, initial production 30 bbls., total depth 914 feet. Sheldon and Shaw's No. 2 Belknap, oil sand 697-712 feet, initial production 35 bbls., total depth 712 feet.

Swink and Smith's No. 3 Belknap, oil sand 647-58 feet, initial production 150 bbls., total depth 690 feet. R. J. Watson's No. 8 Watson, dry and abandoned, total depth 728 feet. Wheeler and Breasher's No. 1 Chandler, dry and abandoned, total depth 515 feet.

WEST TEXAS PRODUCTION
Week Ending September 21

County—	No. wells	Prod.
Andrews	4	0
Crane	377	15,053
Crockett	51	1,189
Ector	78	7,678
Fisher	11	938
Garza	2	15
Howard-Glasscock	543	28,874
Irion	9	66
Jones	86	1,361
Loving	46	3,300
Mitchell	111	1,835
Pecos	549	73,506
Reagan	355	23,987
Runnels	5	71
Scurry	5	0
Upton	263	4,642
Taylor	3	42
Ward	69	3,062
Winkler	595	38,877
Total production this week		204,496
Total production last week		206,074
Decrease		1,578

NORTH CENTRAL TEXAS PRODUCTION
Week ending September 19

Panhandle District—	Bbls.
Carson County	6,384
Gray County	43,765
Hutchinson County	13,361
Moore County	1,737
Potter County	....
Wheeler County	282
Total production this week	65,529
Total production last week	59,139
Increase	6,390
Wichita Falls District—	
Archer County	11,516
Baylor County	667
Clay County	437
Cooke County	1,519
Foard County	70
Haskell County	26
Jack County	1,894
Montague County	2,917
Throckmorton County	430
Wichita County	16,620
Wilbarger County	12,324
Young County	9,687
Total production this week	58,109
Total production last week	58,883
Decrease	774
Ranger District—	
Brown County	5,745
Callahan County	1,487
Coleman County	2,079
Comanche County	750
Palo Pinto County	351
Eastland County	2,765
Shackelford County	2,124
Stephens County	4,074
Total production this week	19,375
Total production last week	17,322
Increase	2,053

SHIPMENTS THROUGH TRUNK LINES

Company, size and location—	Bbls.
Atlantic, 10-in., Houston	20,576
Gulf, 10-in., Ranger	3,615
Humble, 2-8-in., San Angelo	35,977
Humble, 10-12-in., Comyn	35,066
Illinois, 2-8-in., Del Rio	26,609
Magnolia, 8-in., DeLeon	17,424
Pasotex, 8-in., El Paso	6,945
Shell, 10-in., Cushing, Okla.	41,093
Shell, 10-in., Houston	25,134
Texas, 12-in., Houston	20,234
Total	232,673

SHIPMENTS TO WEST TEXAS REFINERIES

Burford Ref. Co., Pecos	5,478
Cosden Ref. Co., Big Spring	3,136
Coltex Ref. Co., Colorado	3,097
Greatwestern Ref. Co., Big Spring	2,208
Continental Ref. Co., Pyote	537
Wickett Ref. Co., Wickett	540
Total	24,998

SHIPMENTS BY TANK CAR

Shell Petroleum Corp., McCamey	400
Big Lake Oil Co., Texon	800
Total	1,200
Total daily average production	206,074
Total daily average distribution	258,871
Daily average from storage	52,797

ARC WELDING AS APPLIED TO INDUSTRY

(Continued from Page 37)

be advisable to stay back from 2 to 6 inches because the majority of couplings or flanges, particularly when threads are used, will leak if the attempt is made to weld them with pressure on the line. If it is desirable to cover up the coupling or flange completely, this is very simply done by putting a section both underneath and over the same, extending far enough on each side to pick up either the pipe itself or the patches. The majority of pipe line companies have access to used or second-hand pipe, or even pieces, that were readily obtainable for use in the repair of lines, and this pipe is entirely satisfactory as today the majority of the lines are very heavily coated with various patented coatings which assist in preserving the pipe after it is put in the ground.

When it is necessary to convert an

old screwed line to gasoline or similar service, excessive trouble with collar leaks is usually experienced. The electric welding of collars is performed without interfering in any way with the continuous operation of the line at full pressure. In fact we consider it safer to weld on an operating line than on one that is shut down. Ordinarily one bead only of welding metal is run beneath the collar and the pipe, but an exception is made where a leaking collar is encountered. The collar leak is caulked ahead of the welding bead and after the bead is complete a second bead is placed entirely around the pipe. This is necessary because the first electric welding in the presence of some oil does not seem to stick perfectly, but once a temporarily tight bead has been welded the second larger bead is not affected by oil.

Ordinarily bell holes only are excavated at the collars, but occasionally where sections of line will need treatment for corrosion in the near future, the line is brought to the surface and both the welding and re-treating is done as one job. In this case the arc welding machines are useful for welding on patches or building up metal over incipient pits, etc.

EAST CENTRAL TEXAS

(Continued from Page 31)

3,676-90 feet, initial production 125 bbls., total depth 3,690 feet. Alma Petroleum Co.'s No. 1 Stokes, oil sand 3,601-85 feet, initial production 120 bbls. per hour on 1-inch choke, total depth 3,687 feet. Arkansas Fuel Oil Co.'s No. 1 Clemons, oil sand 3,606-22 feet, initial production 90 bbls. per hour on three-quarters-inch choke, total depth 3,622 feet. Arkansas Fuel Oil Co.'s No. 2 Orms, oil sand 3,-577-3,603 feet, initial production 210 bbls. per hour on 2½-inch tubing choke, total depth 3,603 feet.

Danciger Oil & Refining Co.'s No. 1 Christian, oil sand 3,591-3,614 feet, initial production 100 bbls. per hour on 2½-inch tubing choke, total depth 3,614 feet. Danciger Oil & Refining Co.'s No. 2 Clemons, oil sand 3,611-25 feet, initial production 340 bbls. per hour on 4-inch open casing, total depth 3,627 feet. Deep Rock Oil Co.'s No. 1 Tooke, oil sand 3,-578-95 feet, initial production 176 bbls. per hour on 2½-inch open tubing, total depth 3,598 feet. Dinham Oil Co.'s (Blackstock and others) No. 1 McGrede, derrick abandoned.

W. R. Duke and others' No. 1 Boles, oil sand 3,602-11 feet, initial production 10 bbls. per hour on four-sixty-fourths-inch choke, total depth 3,611 feet.

East Texas Refining Co.'s No. 1 Christian, oil sand 3,610-35 feet, initial production 106 bbls. per hour on 1-inch tubing choke, total depth 3,635 feet. Flannery Oil Co.'s No. 1 Victory, derrick abandoned. F. & M. Drilling Co.'s No. 1 Fisher, derrick abandoned. Fritz and others' No. 1 Anderson, oil sand 3,592-3,-633 feet, initial production 130 bbls. per hour on 1-inch choke, total depth 3,633 feet.

Gulf Production Co.'s No. 3 Fishburn, initial production 150 bbls. per hour on three-quarters-inch choke from sand 3,-481 feet, total depth 3,503 feet. Heyser and Heard's No. 2 Hindman, oil sand 3,613-74 feet, initial production 137 bbls. per hour on 1-inch choke, total depth 3,-673 feet. Houston Oil Co.'s No. 2 Bauknight, oil sand 3,575-3,614 feet, initial production 105 bbls. per hour on three-quarters-inch tubing choke, total depth 3,667 feet.

Humble Oil & Refining Co.'s No. 2 Christian, oil sand 3,620-67 feet, initial production 129 bbls. per hour on three-quarters-inch choke, total depth 3,667 feet. Same company's No. 1 Harris, oil sand 3,475-3,527 feet, initial production 253 bbls. first three hours on three-quarters-inch choke, total depth 3,527 feet. Same company's No. 1 Killingsworth, oil sand 3,603-65 feet, initial production 102 bbls. per hour on three-quarters-inch choke, total depth 3,666 feet. Inland Oil Co.'s No. 1-B Fenn, oil sand 3,597-3,641 feet, initial production 109 bbls. per hour on 1-inch choke, total depth 3,640 feet. Payne Oil Co.'s No. 1 Isley, oil sand 3,-543-3,581 feet, initial production 225 bbls. first three hours on one-half-inch choke, total depth 3,580 feet. W. R. Jones' No. 1 Doby, oil sand 3,686-98 feet, initial production 224 bbls. per hour on tubing and casing, total depth 3,698 feet.

Kilgore, Barton and Hanson's No. 1 Colburn, oil sand 3,579-99 feet, initial production 77 bbls. in two hours on twenty-sixty-fourths-inch choke, total depth 3,-599 feet. Lake Oil Co.'s No. 1 Thad Snoddy, oil sand 3,577-3,616 feet, initial production 185 bbls. per hour on 1-inch choke, total depth 3,613 feet.

Magnolia Petroleum Co.'s No. 1 Dyers, oil sand 3,549-3,558 feet, initial production 180 bbls. per hour on 1-inch choke, total depth 3,558 feet. Same company's No. 2 Dyers, oil sand 3,517-3,605 feet, initial production estimated 180 bbls. per hour on 1-inch choke, total depth 3,546 feet. Same company's No. 2 Green, oil sand 3,557-78 feet, initial production 150 bbls. per hour on 1-inch choke, total depth 3,577 feet. Same company's No. 2 Richey, oil sand 3,526-65 feet, initial production 211 bbls. per hour on 2½-inch tubing choke open, total depth 3,562 feet. Same company's No. 3 Richey, oil sand 3,526-64 feet, initial production 211 bbls. per hour on 2½-inch tubing open, total depth 3,562 feet.

Shell Petroleum Corp.'s No. 3 Richey, oil sand 3,527-65 feet, initial production 210 bbls. per hour on 2½-inch tubing open, total depth 3,565 feet. Stanolind and Simms Oil Co.'s No. 1 Fonville, oil sand 3,514-57 feet, initial production 121 bbls. per hour on three-quarters-inch choke, total depth 3,558 feet.

Barnsdall Oil Co.'s No. 4 Smith, oil sand 3,596 feet, initial production 110 bbls. per hour through 2½-inch tubing choke, total depth 3,604 feet. Gulf Production Co.'s No. 1 Mary Charles, oil sand 3,632 feet, initial production 93 bbls. per hour through forty-two-sixty-seconds-inch choke, total depth 3,638 feet. Lion Oil & Refining Co.'s No. 1 A. A. King, oil sand 3,533 feet, initial production 225 bbls. in two hours through 2½-inch tubing choke, total depth 3,598 feet.

Magnolia Petroleum Co.'s No. 1 Sam Carr, oil sand 3,455 feet, initial production 190 bbls. per hour through 1-inch choke on tubing, total depth 3,465 feet. Shell Petroleum Corp.'s No. 12 J. R. Watson, oil sand 3,567 feet, initial production 235 bbls. per hour through open tubing, total depth 3,636 feet. Same corporation's No. 3 E. W. Willoughby, broken oil sand 3,548-94 feet, initial production 183 bbls. per hour through open 2½-inch tubing, total depth 3,600 feet.

Sutton and Hawkins' No. 1 Whittaker, oil sand 3,500-48 feet, initial production 190 bbls. per hour on 2½-inch tubing choke, total depth 3,551 feet. Sutton and Hawkins' No. 2 Whittaker, oil sand 3,509-54 feet, initial production 241 bbls. per hour on 2½-inch open tubing, total depth 3,554 feet.

The Texas Company's No. 3 Clark, oil sand 3,581-3,645 feet, initial production 200 bbls. per hour on 2½-inch tubing choke, open, total depth 3,645 feet. Same company's No. 2 Woods, oil sand 3,537-75 feet, initial production 205 bbls. per hour on 2½-inch open tubing, total depth 3,-580 feet. Tidal Oil Co.'s No. 2 Jones, oil sand 3,655-71 feet, initial production 181 bbls. per hour on 2½-inch open tubing, total depth 3,673 feet. L. H. Wentz Oil Corp.'s No. 1 Richey, oil sand 3,519-63 feet, initial production 15 bbls. per hour on eight-sixty-fourth-inch choke, total depth 3,562 feet.

Wellington and others' No. 1 Boyle, oil sand 3,617-40 feet, initial production 200 bbls. per hour, total depth 3,670 feet. Y. Oil & Gas Co.'s No. 1 Kinsell, oil sand 3,635-57 feet, initial production 135 bbls. per hour on three-fourth-inch tubing choke, total depth 3,656 feet.

Yount Lee Oil Co.'s No. 1 Calvin, oil sand 3,551-70 feet. initial production 90 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,571 feet. Same company's No. 2-B Fenton, oil sand 3,594-3,612 feet, initial production 74 bbls. per hour on eleven-sixteenths-inch choke, total depth 3,611 feet. Same company's No. 2 Hopkins, oil sand 3,504-30 feet, initial production 95 bbls. per hour on eleven-sixteenths-inch choke, total depth 3,521 feet. Same company's No. 1 Mary McKinley, oil sand 3,538-56 feet, initial production 85 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,556 feet. Same company's No. 1-A Smith, oil sand 3,546 feet, initial production 100 bbls. per hour on eleven-sixteenths-inch choke, total depth 3,566 feet. Same company's No. 1-B Thad Snoddy, oil sand 3,556-77 feet, initial production 89 bbls. per hour on eleven-sixteenths-inch choke, total depth 3,577 feet. Same company's No. 2 Stephens, oil sand 3,561-80 feet, initial production 95 bbls. per hour on eleven-sixteenths-inch choke, total depth 3,580 feet.

Rusk County

Dapoil's No. 1-A Barksdale, top sand 3,799 feet, initial production 180 bbls. per hour through open tubing, total depth 3,702 feet. East Texas Refining Co.'s No. 1 O'Quinn, top sand 3,799 feet, initial production 220 bbls. in 45 minutes through open tubing, total depth 3,808 feet. Hill and Henry's No. 1 Alford, top sand 3,608 feet, initial production 65 bbls. per hour through open casing, total depth 3,700 feet.

Humble Oil & Refining Co.'s No. 3 Blackwell, top sand 3,666 feet, initial production 108 bbls. per hour through three-fourths-inch tubing choke, total depth 3,674 feet. Same company's No. 2 C. O. Crim, top sand 3,776 feet, initial production 101 bbls. per hour through 1½-inch tubing choke, total depth 3,784 feet. Same company's No. 2-A Ida Holt, top sand 3,765 feet, initial production 71 bbls. through three-fourths-inch tubing choke, total depth 3,774 feet. Same company's No. 3-A Holt, top sand 3,750 feet, initial production 112 bbls. per hour through three-fourths-inch tubing choke, total depth 3,756 feet. Same company's No. 1 O. R. Holt, top sand 3,776 feet, initial production 74 bbls. per hour through one-fourth-inch tubing choke, total depth 3,804 feet. Same company's No. 2 O. R. Holt, top sand 3,744 feet, initial production 106 bbls. per hour through three-fourths-inch tubing choke, total depth 3,766 feet. Same company's No. 1-B Kangerga, top sand 3,661 feet, initial production 51 bbls. per hour through 1-inch tubing choke, total depth 3,672 feet. Same company's No. 3 J. W. Turner, top sand 3,701 feet, initial production 113 bbls. per hour through three-fourths-inch tubing choke, total depth 3,747 feet. Same company's No. 3 A. L. Walker, top sand 3,637 feet, initial production 105 bbls. per hour through three-fourths-inch tubing choke, total depth 3,650 feet. Same company's No. 4 J. E. Whellis, top sand 3,772 feet, initial production 119 bbls. per hour through three-fourths-inch tubing choke, total depth 3,779 feet. Same company's No. 7 J. H. Wooley, top sand 3,641 feet, initial production 107 bbls. per hour through three-fourths-inch tubing choke, total depth 3,662 feet.

H. L. Hunt's No. 1 Barksdale, top sand 3,686 feet, initial production 120 bbls. per hour through open tubing, total depth 3,734 feet. Lucy Petroleum Co.'s No. 3 Maxwell, top sand 3,657 feet, initial production 156 bbls. per hour through open tubing, total depth 3,697 feet. Brown and Wilson's No. 2 M. R. Terrell, oil sand 3,646 feet, initial production 125 bbls. per hour through three-fourths-inch tubing choke, total depth 3,648 feet.

Gulf Production Co.'s No. 1 Florence, oil sand 3,650 feet, initial production 113 bbls. per hour through three-quarters-inch choke, total depth 3,665 feet. Heep Oil Co.'s No. 1 Jernigan, oil sand 3,665 feet, initial production 125 bbls. per hour through three-quarters-inch tubing choke, total depth 3,675 feet.

Mid-Kansas Oil & Gas Co.'s No. 1 M. M. Cross, top sand 3,634 feet, initial production 121 bbls. per hour through three-quarters-inch tubing choke, total depth 3,-645 feet. Same company's No. 1 Mason, top sand 3,634 feet, initial production 225 bbls. per hour, total depth 3,650 feet. Same company's No. 2 Joe Mills, top sand 3,641 feet, initial production 225 bbls. in 24 hours, total depth 3,676 feet. Same company's No. 2 E. E. Moore, top sand 3,630 feet, initial production 224 bbls. in 24 hours, total depth 3,645 feet.

Prairie Oil & Gas Co.'s No. 4 Wilson, top sand 3,618 feet, initial production 136 bbls. per hour through three-quarters-inch choke, total depth 3,625 feet. Tidal Oil Co.'s No. 3 Thompson, top sand 3,656 feet, initial production 357 bbls. per hour through open casing, total depth 3,676 feet.

Humble Oil & Refining Co.'s No. 11-B S. S. Laird, top sand 3,588 feet, initial production 47 bbls. first hour, total depth 3,640 feet. Same company's No. 12-B S. S. Laird, top sand 3,588 feet, initial production 80 bbls., total depth 3,635 feet. Same company's No. 2-A Sexton, oil sand 3,658 feet, initial production 47 bbls. per hour through three-quarters-inch tubing choke, total depth 3,684 feet.

Magnolia Petroleum Co.'s No. 7 W. P. Moore, oil sand 3,678 feet, initial production 126 bbls. first 15 minutes through 4-inch on casing and three-quarters-inch tubing choke, total depth 3,685 feet. Same company's No. 1 C. C. Still, oil sand 3,-689 feet, initial production 133 bbls. first 15 minutes through 4-inch casing and three-quarters-inch tubing choke, total depth 3,697 feet. Shell Petroleum Corp.'s No. 4 W. P. Moore, oil sand 3,710 feet initial production 160 bbls. per hour through 2½-inch tubing choke, total depth 3,717 feet. Sinclair Oil & Gas Co.'s No. 1 Major Kennedy, oil sand 3,-640-41 feet, initial production 225 bbls. per hour pumping, total depth 3,760 feet.

Smith County

Hossier and Big Indian Oil Co.'s No. 1 Robertson, top sand 3,652 feet, initial production 60 bbls. per hour through 1¼-inch tubing choke, total depth 3,660 feet. Magnolia Petroleum Co.'s No. 8 J. R. Wright, top sand 3,632 feet, initial production 233 bbls. in 15 minutes through open casing, total depth 3,544 feet. The Texas Company's No. 4 Blackwell, top sand 3,761 feet, initial production 112 bbls. per hour, total depth 3,765 feet. Same company's No. 4 Wilson, top sand 3,663 feet, initial production 180 bbls. per hour through open casing, total depth 3,-672 feet.

Upshur County

Arcadia Refining Co.'s No. 1 Phillips, oil sand 3,646 feet, initial production 80 bbls. per hour on three-fourths inch choke, total depth 3,664 feet. Glass Brothers' (Hawkeye Petroleum Co.) No. 1 Landars, oil sand 3,660-80 feet, initial production 100 bbls. per hour on 1-inch choke, total depth 3,680 feet. Humble Oil & Refining Co.'s No. 2 Edwards, oil sand 3,595-3,656 feet, initial production 158 bbls. in two hours on three-fourths inch choke, total depth 3,656 feet.

Magnolia Petroleum Co.'s No. 1 Adkins, oil sand 3,679-85 feet, initial production 160 bbls. per hour on 2½-inch tubing open, total depth 3,744 feet.

Rancho Oil Co.'s No. 1 Meyer, oil sand 3,632-64 feet, initial production 225 bbls. in 2½ hours on one-half inch choke, total depth 3,667 feet.

M. E. Bogle and others' No. 1 O'Byrne, dry and abandoned, total depth 3,791 feet.

Nacogdoches County

Burke and others' No. 1 Patterson, dry and abandoned, total depth 4,275 feet. Burton and others' No. 1 Reece, dry and abandoned, total depth 4,012 feet.

Wood County

Main Holding Co.'s No. 1 Thelma Wells, dry and abandoned, total depth 600 feet.

REPORT IN NEW MEXICO

DENVER, Colo., Sept. 21.—An extensive and comprehensive report on the oil and gas resources of New Mexico and progress of development, which has been in course of preparation for several months by Dean E. Winchester, consulting geologist, Denver, Colo., for the New Mexico School of Mines and State Bureau of Mines and Mineral Resources, will be issued near the close of the year. Advance copies of the state map, showing the axes of nearly 200 anticlinal structures, which will be a part of the report, have been printed.

In addition to the 200 anticlinal structures, the two-color map shows the location, total depth and results, by symbols, of approximately 1,000 wildcats, the location by pattern of oil and gas fields, pipe lines, refineries and natural gasoline plants, etc. In the preparation of the map and report, Mr. Winchester had the co-operation of the oil operators, state officials, the U. S. Geological Survey and other authorities.

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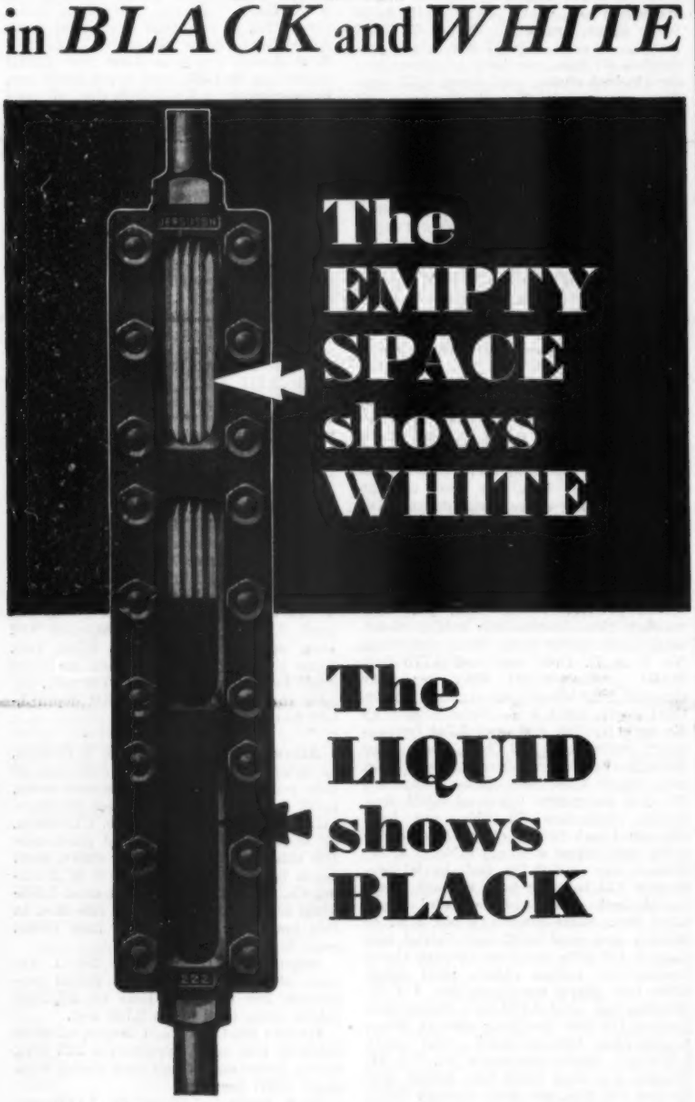

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PETROLEUM OUTPUT IN COLOMBIA AND PERU

CHATHAM, Ontario, Sept. 19.—Official figures have been made public covering operations of International Petroleum Co. in South America for July. In the Peruvian fields, the company completed three wells in July with average initial production of 237 bbls. The total crude production in July was 785,841 bbls., and the average daily production in August was 18,981 bbls.

In the seven months ending July 31, 31 wells were completed in Peru with average initial production of 263 bbls., while total crude production for that period was 4,555,015 bbls.

In Colombia, four new wells were completed in July with average initial production of 463 bbls. Crude production for the month of July aggregated 1,490,524 bbls., while average daily production for August was 48,791 bbls. In the seven months' period ending July 31, 29 wells were completed in Colombia with average initial production of 648 bbls., while the total crude production was 10,870,581 bbls.

TESTS DISCLOSE POTASH

The U. S. Geological Survey has recently completed the analyses of the cores from the nineteenth, twentieth and twenty-third government test holes drilled in Lea and Eddy Counties, New Mexico, by the Bureau of Mines under the potash ace, which provides for joint explorations by the Department of the Interior and the Department of Commerce. Polyhalite ($K_2SO_4.MgSO_4.2CaSO_4.2H_2O$), carnallite ($KCl.MgCl_2.6H_2O$),, and sylvite (KCl) were found in each core. Several beds of polyhalite that may have potential commercial value were found especially in the twentieth and twenty-third test holes. The principal discovery, however, was a 5-foot bed of sylvinite (halite and sylvite) at a depth of 691 feet in the twenty-third test hole, which contains the equivalent of 30.75 per cent of K_2O. This bed compares favorably with the bed now being mined in New Mexico and with the best of the potash salts being mined abroad. It is overlain by another 5-foot bed of halite and sylvite that contains the equivalent of 8.8 per cent of K_2O and could perhaps be utilized in part in mining.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 32)

Sherwood's No. 1 Morse, 990 ft. N, 990 ft. W, NW, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Top pay 2,580-2,698 ft.; shot 400 qts. 2,580-2,703 ft, 1,800 ft. oil in hole; running 6⅝-in. csg.

Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9 H.&G.N. Sur. ..... Rig; elevation 2,686 ft.

Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 3, Blk. 1, B.B.&S.F. Sur. ..... Location.

HUTCHINSON COUNTY

Danciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. ..... Spudded and S.D.

Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. .... S.D. 450 ft.

Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... S.D. 3,016 ft.

Smith & Daniels' No. 2 Pitcher, 990 ft. from S and 330 ft. from E, Sec. 19, Blk. M-21, T.C.R.R. Sur. ..... Rig.

Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.D. 3,115 ft.

Timms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, I.&G.N. Sur. ..... Rig.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T.D. 5,003 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft.; S.D. 4,167 ft.

MOORE COUNTY

Gulf Prod. Co.'s No. 1 Burnett, 330 ft. from N and W, Sec. 356, Blk. 44, H.&T.C. Sur. ..... Rig.

Interstate's No. 1 Nield, C NE, Sec. 18, Blk. 44, H.&T. C. Sur. ..... Location.

Pollard et al's No. 1 Hall, 330 ft. S and E, NE, Sec. 131, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

Sunray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

Texas Interstate P. L. Co.'s No. 1-23 Thompson, C N½ NE, Sec. 23, Blk. 44, H.&T.C. Sur. ..... Location.

Texas Interstate P. L. Co.'s No. 1-37 Sneed, C NW, Sec. 37, Blk. 6-T, T.&N.O. Sur. ..... Location.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 530 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... S.D. 400 ft.

Chambers et al's No. 1 Herring, CNL, Sec. 20, Blk. S, G.C.&S.F. Sur. ..... Drlg. 1,630 ft.

POTTER COUNTY

Red River Gas Co.'s No. 6-A Bivins, 1,344 ft. S, 1,089 ft. W, SE, Sec. 37, Blk. M-20, G.&M. Sur. ..... Gas show 2,255 ft.; cmtd. 8-in. csg. 2,380 ft.

ROBERTS COUNTY

Chicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. ..... Drlg. 1,110 ft.; carrying 10-in. csg.

Travis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-2, H.&G.N. Sur. ..... S.D. 2,690 ft.

WHEELER COUNTY

Clarity et al's No. 1 Porter, 330 ft. S and W, SE, Sec. 2, Blk. A-9, H.&G.N. Sur. ..... S.D. for 6-in. csg. at 2,150 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 32)

GAINES COUNTY

Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE Sec. 4, Blk. A-8, P.S.L. Sur. ..... Total depth 4,630 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ..... Spudded and shut down.

Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ..... Total depth 3,202 ft.

HOWARD COUNTY

Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur. .. Spudded and shut down.

Merrick & Lamb's No. 2 Chalk, 990 ft. from the N and W lines of Sec. 125, Blk. 29, W.&M.W.R.R. Sur. .... Drlg. 1,145 ft.

IRION COUNTY

Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W Sec. 3,081, Blk. 28, H.&T.C. Sur. ..... Drlg. 2,670 ft.

Denny & Andrews' No. 1-A Tankersley, 200 ft. from S and 2,000 ft. from E of Sec. 705, J. W Imhoff Sur. ... Shut down 462 ft.

Ellis et al's No. 1 Nutt, 1,350 ft. from N and 450 ft. from E of Sec. 694, Kheikenholm Sur. ..... Shut down 1,500 ft.

Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Waiting on cement to set; total depth 6,160 ft.

Straughn & Adkins Bros.' No. 1 Lee, 1,980 ft. from W and 420 ft. from N of Sec. 719, C. Kaiser Sur. ..... Shut down 725 ft.

JONES COUNTY

Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 42.4-acre tract in G. Martinez Sur. ..... Shut down 1,005 ft.

LOVING COUNTY

Ervin & Mahres' No. 1 Thrope, 2,310 ft. from S and 990 ft. from S Sec. 46, Blk. 53, T.&P. Sur. ..... Shut down 810 ft.

Slack's No. 1 Lynd, 990 ft. NE and 330 ft. SE of Sec. 3, Blk. 2, W.&N.W. Sur. ..... Drlg. 910 ft.

Eppenauer et al's No. 1 Johnson, 330 ft. from NW and SW of Sec. 86, Blk. 1, W.&N.W. Sur. ..... Total depth 4,394 ft.; plugged back to 4,391 ft.; shot 180 qts. 4,362-91 ft.; made one 10-bbl. head; may deepen.

Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW Sec. 79, Blk. 33, H.&T.C. Sur. ..... Shut down 2,500 ft.

Lewis & Slagel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W Sec. 6, Blk. 56, Twp. 1, T.&P. Sur.... Spudded and shut down.

Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,385 ft.

Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur. ..... Shut down 1,400 ft.

Priest's No. 1 Sorrel, 1,000 ft. from E and 200 ft. from S cor. Sec. 132, E.L.R.R. Sur. ..... Shut down 2,860 ft.

PECOS COUNTY

Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur. ..... Running 6-in. casing; total depth 1,300 ft.

Slaughter et al's No. 1 Sun Yates, 60 ft. S of Sun Oil Co.'s No. 1 Yates, Sec. 59, Blk. 1, I.&G.N. Sur. ..... Location.

REAGAN COUNTY

Carl Cromwell et al's No. 1 University, 1,320 ft. from S line and 1,320 ft. from E line of Sec. 4, University Blk. 7 ..... Spudded 55 ft.

REEVES COUNTY

Cunningham et al's No. 1 Wright, 1,320 ft. from S and W Sec. 58, Cassel's Sur. ..... Spudded and shut down.

James & Milton's No. 1 Patterson, 330 ft. from N and W of Sec. 21, Blk. 72 ..... Drlg. 2,665 ft.

Lee O. White et al's No. 1 Hersberson, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10 T.&P. Sur. ... Shut down 5,044 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519 ..... Fishing underreamer lugs; total depth 2,556 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Shut down 4,500 ft., contract depth.

Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Drlg. 4,205 ft.

George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,052 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 5,041 ft.

Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W Sec. 68, Blk. 3, H.&G.N. Sur. ..... Spudded and shut down.

Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur. ..... Shut down 3,500 ft.

Simon & Brock et al's No. 1 Cruse, 2,310 ft. from S and E Sec. 119, Blk. 97, H.&T.C. Sur. ..... Show oil 1,798, 1,820, 1,850 ft.; shut down 2,500 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 15a, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.

Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.

Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F. Sur... Shut down 6,120 ft.

Jones et al's No. 1 Tankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 2,545 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 1,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.

Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. .... Shut down 1,994 ft.

Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S Grant Sur No. 2 ..... Shut down 200 ft.

UPTON COUNTY

Cosby Prod. & Roy. Co.'s No. 1 Lane, 2,310 ft. from S and 1,650 ft. from W Sec. 36, Blk. 1, M.-K.-T. Sur... Drlg. 2,072 ft.

Rankin et al's No. 1 Cordova Union Land, 660 ft. from N and E Sec. 6, G.C.&S.F. Sur., 1¼ miles S of Rankin ..... Drlg. 3,126 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,360 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Shut down 6,780 ft.

WARD COUNTY

Boogher's No. 1 fee, 235 ft. from SE and 3,553 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur. ..... S.D. 2,111 ft.

Buster Black's No. 1 Hall & Roberts, 990 ft. from NE and 1,650 ft. from NW Sec. 17, Blk. 32, H.&T.C. Sur... Shut down 2,150 ft.

Central Oil & Gas Co.'s No. 1 Barrow, 330 ft. from NW and 1,263 ft. from SW Sec. 55, J. W. Jackson Sur. ..... Shut down 1,960 ft.

H. V. Greer's No. 1 Carr, 150 ft. from NW and 510 ft. from SW Sec. 12, Blk. 5, H.&T.C. Sur. ..... Spudded and shut down.

Gulf Prod. Co.'s No. 8 O'Brien, 2,310 ft. from S and 330 ft. from W lines of Sec. 194, Blk. 1, B.B.&C. Sur... Drlg. 2,585 ft.

Hankinson et al's No. 1 Emery, 2,090 ft. from SE and 510 ft. from SW Sec. 26, Blk. 5, H.&T.C. Sur. ..... Shut down 2,238 ft.

Moran & Miles' No. 1 Boogher, 3,603 ft. from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Shut down 715 ft.

R. F. Owens' No. 1 Lee, 1,344 ft. from NW and 4,523 ft. from SW Sec. 1, J. Howe Sur. ..... Spudded and shut down.

Peck & Fuglar's No. 1 Merritt, 3,663 ft. from NE and 1,698 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Shut down 1,930 ft.

Prairie Oil & Gas Co.'s No. 1 Edmonson, 330 ft. from NW and 2,310 ft. from SW of Sec. 23, Blk. 5, H.&T.C. Sur. ..... Cellar.

Prairie Oil & Gas Co.'s No. 2 Edmonson, 330 ft. from NW and SW of Sec. 23, Blk. 5, H.&T.C. Sur. ..... Location.

Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 22, Blk. A, G.M.M.B.&A. Sur. ..... Shut down 3,602 ft.

Rexford et al's No. 2 Johnson, 2,300 ft. from SE and 4,450 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Shut down 1,316 ft.

Paul Ryan et al's No. 1 J. S. Reynolds, 4,110 ft. from NE line and 150 ft. from NW line, Sec. 12, Blk. 5, H.&T.C. Sur. ..... Drlg. 1,175 ft.

Stanolind Oil & Gas Co.'s No. 1 Brown, 330 ft. from NW and SW Sec. 26, Blk. B-29 ..... Material.

Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ..... Shut down 4,545 ft.

White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 3, Blk. 32, H.&T.C. Sur. ..... Shut down 755 ft.

WINKLER COUNTY

Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor. Sec. 2, Blk. B-5 ..... Shut down 4,640 ft.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 31)

GREGG COUNTY

N. M. Acre et al's No. 1 S. J. Boles, 16 ft. S and 153 ft. E of SE cor. of William Carleton Sur. but in Carl Rhodes Sur. ..... Drlg. 2,700 ft.; top pay 2,531 ft.

Atlantic Oil Producing Co.'s No. 1 Duncan, 731 ft. from N and 1,250 ft. from W of 100-ac. tract in D. Ferguson Sur. ..... Location.

Artic Petroleum Co.'s No. 1 King, 57 ft. S of most northerly NW cor. and 104 ft. E at right angles in 2-ac. tract, Chisum Sur. ..... Derrick.

Atlantic Prod. Co.'s No. 1 J. J. Fuller, 394 ft. from E and 342 ft. from S of 50-ac. tract and lease, Mowery Irwin Sur. ..... Derrick.

Barnsdall Oil Co.'s No. 1 G. E. Adams, 1,150 ft. from S and 3,720 ft. from W of G. W. Hooper Sur. ..... Derrick.

Barnsdall Oil Co.'s No. 1 Ferguson, 104 ft. from S and 150 ft. from E of 37-ac. tract in H. A. Hoket Sur... Drlg. 800 ft.

Bagby et al's No. 1 Key, 1,080 ft. from S and 265 ft. from E of Rigsby Sur. ..... Derrick.

Bramlette's No. 1 Goforth, 170 ft. due N of NW cor. of Sun-Hilburn-Lloyd lease in Chisum Sur. ..... Rigging up.

Bob et al's No. 1 T. L. Broy, 290 ft. from E and 1,640 ft. from S of H. A. Hoidt Sur. ..... Derrick.

M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur. ..... Derrick.

Branson et al's No. 1 J. J. Fuller, 1,050 ft. from N and 170 ft. from W of survey, M. Alexander Sur. .. Derrick.

Campbell and Lee's No. 1 A. Johnson, 170 ft. from N line and 134 ft. from E line of 11-ac. lease in the M. Dillard Sur. ..... Set 10-in. csg. 886 ft.

Columbia Oil & Gas Co.'s No. 1-A Harley, 650 ft. E and 300 ft. S of SE cor. of Laura Walker 45-ac. tract, William Robinson Sur. ..... Derrick.

Continental Oil Co.'s No. 1 J. J. Flewellen, 359 ft. from N and 949 ft. from E of 200-ac. lease, Marshall Mann Sur. ..... Location.

Charles Davidson et al's No. 1 Paul Jones, 7,000 ft. from most southerly N line and 3,600 ft. from W, W. P. Chisum Sur. ..... Waiting on csg. 3,666 ft.

Eastland Oil & Gas Co.'s No. 1 B. B. Sparks, 150 ft. from N and 150 ft. from W of E 50 acres of 100-ac. tract, Harvey R. Kirk Sur. ..... Shut down 3,240 ft.

Empire Gas & Fuel Co.'s No. 1 Jeter, 440 ft. from E and 200 ft. N of right of way, Wm. Tyndale Sur. .... Rigging up.

Dr. J. C. Falvey et al's No. 1 fee, 150 ft. from S and 150 ft. from W of 58-ac. tract, Marshall Mann Sur. ..... Top Pecan Gap 2,466 ft.; drlg. 3,010 ft.

Feagan & Saimon's No. 1 Thornton, 300 ft. E of Oriental Oil Co.'s No. 1 Alexander ..... Location.

F. H. E. Oil Co.'s No. 1 Clements, C of 10-ac. tract, in Rhodes Sur. ..... Drlg. 2,790 ft.

Glasscock's No. 1 Jones, 150 ft. from S and W of 65-ac. tract, in Chisum Sur. ..... Derrick.

Grossy et al's No. 1 Morgan, 325 ft. from N and 900 ft. of Martha Dillard Sur. ..... Derrick.

Greenwood & Josey's No. 1 Spurrier, 438 ft. from S and center E and W of 3-ac. lease, Wm. Castleberry Sur. ..... Drlg. 1,663 ft.

Greer's No. 1 L. M. Colburn, 150 ft. from E and 150 ft. from S of 45-ac. lease, 5,700 ft. from E and 850 ft. from N of survey, Henry Hathaway Sur. ..... Drlg. 3,250 ft.

Gulf Prod. Co.'s No. 1 Fonville, 330 ft. from S and E of 100-ac. lease in Wm. Tyndale Sur. ..... Drlg. 2,240 ft.

Gulf Prod. Co.'s No. 1 Shephard, 330 ft. from S and W of most southerly SW cor. of Rains Sur. ..... Derrick.

Harper Petroleum Corp.'s No. 1 Woodley Jones, 2,000 ft. from N line and 3,900 ft. from E line of William H. Castleberry Sur. ..... Derrick.

Humble Oil & Refining Co.'s No. 1 H. M. Lawrence, 540 ft. from N and 219 ft. from W of 100-ac. tract, David Ferguson Sur. ..... Derrick.

Humble Oil & Refining Co.'s No. 1 J. H. Sheppard, NE cor. of 215-ac. tract in I. Allen Sur. ..... Derrick.

Humble Oil & Refining Co.'s No. 1 J. M. McFarland, 1,400 ft. from N and 449 ft. from W line of 57.5-ac. tract, L. J. Rigsby Sur. ..... Drlg. 2,917 ft.

Jackson et al's No. 1 fee, 2,040 ft. from N and 2,000 ft. from E of M. Dillard Sur. ..... Drlg. 1,015 ft.

Johnston's No. 1 Williams, 125 ft. from N and W of 3-ac. tract, Van Winkle Sur. ..... Derrick.

K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur. ..... Rig up and shut down.

Kiltner and Easterling's No. 1 Missie Young, 230 ft. S and 250 ft. E of SW cor. of the H. Edwards Sur. in the C. Rhodes Sur. ..... Set 10-in. csg. 150 ft.

Kimsey-Trimble's No. 1 Griffith Davis, 922 ft. E of N line of Griffith Davis 119.5-ac. tract from NW cor. of same and 145 ft. at right angles, W. P. Chisum Sur. ..... Shut down 3,630 ft.

Lockhart et al's No. 1 Jones, 200 ft. from N and center E and W of 18-ac. lease in Hooper Sur. ..... Rigging up.

Lone Star Oil Co.'s No. 1 Griffin, C of 2-ac. lease in Van Winkle Sur. ..... Top sand 3,557 ft.; set csg.; T. D. 3,585 ft.

Charles Love et al's No. 1 J. B. Doby, 150 ft. from E and 150 ft. from S of S 6 acres of W 42 acres of 170-ac. tract, W. H. Castleberry Sur. ..... Derrick.

Magnolia Petroleum Co.'s No. 1 Key, 200 ft. from N and 150 ft. from E of 64-ac. lease, John Ruddle Sur... Drlg. 2,780 ft.

Mullendore & Berry's No. 1 Spear, 180 ft. E of road and 165 ft. S of N line of 15-ac. lease, Mary Van Winkle Sur. ..... Drlg. 3,580 ft.

Oils, Inc.'s No. 1 Milas, 150 ft. from S and E of tract, John Ruddle Sur. ..... Derrick.

Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line of 6.66-ac. lease, C. H. Alexander Sur. ..... Derrick.

Selby Oil & Gas Co. and Kistler's No. 2 Snavely, 1,640 ft. from S and 2,440 ft. from E of Wm. Tyndale Sur... Drlg. 3,160 ft.

H. P. Smith's No. 1 Elder & Son, 141 ft. from W line of lease and center N and S of 3-ac. lease in Van Winkle Sur. ..... Set 160 ft. of 10-in. csg.

Earl Sneed et al's No. 1 A. M. Kensel, 293 ft. from N and 260 ft. from W of N 23-ac. lease in 94 acres, H. H. Kirk Sur. ..... Location.

Sun Oil Co.'s No. 1 J. W. Akin, 320 ft. from N and W lines of 25.68-ac. tract in George A. Thomason Sur. ..... Fishing pipe; T. D. 3,450 ft.

Superior Oil Co.'s No. 1 Pritchard, 330 ft. from N and W of 40-ac. lease in Francis Johnson Sur. ..... Drlg. 2,545 ft.

The Texas Company's No. 2 Dickson, 300 ft. from N and W of lease, Wm. McCurry Sur. ..... Drlg. 2,520 ft.

Tidal Oil Co.'s No. 1 Lake Diversia Fish and Game Club, 300 ft. from N and 550 ft. from W lines of tract in William G. Painter Sur. ..... Derrick.

Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur. ..... Derrick.

H. M. Wages et al's No. 1 Finley and Thomas, 165 ft. from E and 150 ft. from S of 10-ac. lease, Charles H. Alexander Sur. ..... Shut down 3,200 ft.

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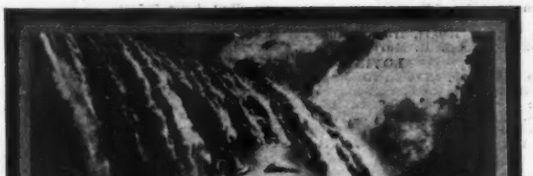

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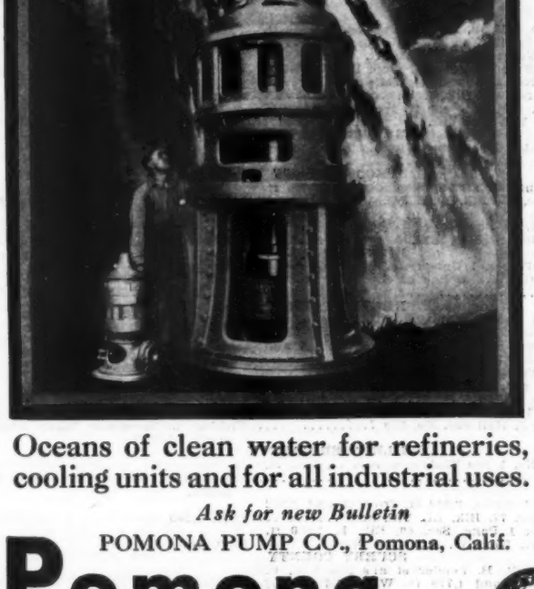

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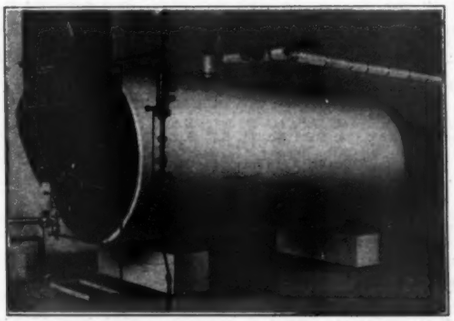

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Ziegler Oil Co.'s No. 1 L. D. Campbell, 540 ft. from N and 319 ft. from E of 72½-ac. tract, David Ferguson Sur. ....Derrick.

HENDERSON COUNTY

Seven Wells Corp.'s No. 1 Douglas, 767 ft. from N and 833 ft. from E of tract in K. H. Douglas Sur. ....Waiting on cement to set 300 ft.

HOPKINS COUNTY

Roark et al's No. 1 Taylor, 220 ft. from N and W lines of 80-ac. tract in the John Polk Sur. ....Shut down 105 ft.

HOUSTON COUNTY

Apex Drlg. Co.'s No. 1 Thompson Bros., 250 ft. out of NW cor. of 200-ac. tract in John Shears Sur. ....Coring 2,080 ft.

N. E. Irish's No. 1 Mrs. Byrdie Watters, 2,300 ft. W and 300 ft. S from the NE cor. of I. J. Ellis Sur. ....Shut down 53 ft.

Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 600 varas from S line of survey on 186-ac. tract, Ramond LaGarza Sur. ....Shut down 620 ft.

Phillips and Phillips' No. 1 Kennedy Bros., 485 varas out of SW cor. of 100-ac. tract, Jose M. Procella Sur. ....Rig up and shut down.

Snow's No. 1 Harron, 300 ft. out of NE cor. of 327-ac. tract, J. P. Procella Sur. ....Spudded and shut down 87 ft.

HUNT COUNTY

Foster and Earl's No. 1 Whitney and Clark, 150 ft. out of NW cor. of 50-ac. tract in W. H. Landrum Sur. ..Spudded and shut down.

LAMAR COUNTY

Indian States Oil Co.'s No. 1 W. T. Watson in Ignalius Aud Sur. ....Shut down 4,026 ft.

Puritan's No. 1 George Parr, 2,000 ft. from W of Frisco Railway and 1,000 ft. from E line of R. Russell Sur. ....Derrick standing.

LEON COUNTY

Cooper et al's No. 1 Lynch, 4,000 ft. from W line and 250 ft. N from the S line of Thomas H. Gardner Sur., and in 200-ac. tract ....Shut down 1,931 ft.

I. M. Hogg, trustee's No. 1 Stone, 156 ft. W of Highway No. 43 and 160 ft. from N line of survey in R. L. Moody Sur. ....Drlg. 4,978 ft.

Sun Oil Co.'s No. 2 Grayson ....Shut down 3,741 ft.

Sun Oil Co.'s No. 3 Grayson, 1,820 ft. from NE and 150 ft. from SE of tract, Margues Sur. ....Location.

MORRIS COUNTY

Dumas et al's No. 1 Tom Ball, 1,046 ft. from E and 248 ft. from S of 71-ac. tract, A. S. Young heirs Sur. ....Derrick.

NACOGDOCHES COUNTY

Bunte et al's No. 1 A. F. Boatman, 330 ft. from S and 150 ft. from W of 67-ac. tract, William A. Moore Sur. ....Shut down 1,605 ft.

Churchill-Armstrong's No. 1 Max W. Hart, 2,640 ft. from N line and 2,640 ft. from S of N line of survey, George Pollett Sur. ....Derrick.

Foreman and Weller's No. 1 Norris, 60 ft. NW of E line and 420 ft. S of road in 73.5-ac. tract, Hosea Y. Barbo Sur. ....Derrick.

Foreman et al's No. 1 Robert Mattaner, NW cor. of 520-ac. tract, J. A. Cherino grant ....Drlg. 32 ft.

Gainer et al's No. 1 Nice Well, 18 miles SE of Nacogdoches, 600 ft. from S and 150 ft. from W of Wells tract in A. Cherino Sur. ....Trying to pump mud and water out of hole; T. D. 3,012 ft.

Scully & Harwell's No. 1 R. I. Driver, 1,500 ft. from SE cor. of P. B. Ballard 125-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur. ....Shut down 2,442 ft.

Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. ....Shut down 3,920 ft.

Sequia's No. 1 Vanover, 6,072 ft. from N and 6,636 ft. from E of Alford Oliver Sur., E. Boyd E 100-ac. tract ....Drlg. 3,081 ft.

Taylor-Vaughn's No. 1 Dixon Greer, 150 ft. from W and 450 ft. from N lines of 60-ac. tract in the M. G. Herrera Sur. ....Shut down 250 ft.; shale.

Big Indian Oil Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Ybarbo Sur. ....Shut down for water; T. D. 535 ft.

L. E. Trout and Dison's No. 1 E. A. Blount, 150 ft. out of NW cor. of survey and tract, E. D. Williams Sur. ....Rig up and shut down.

RAINS COUNTY

Berry and Hale's No. 1 Ownsby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ....Preparing to start drlg.; T. D. 2,095 ft.

RED RIVER COUNTY

Royle and Jondreau's No. 1 V. S. Griffin, 700 ft. from N line and 650 ft. E of W line of survey, J. C. Brown Sur. ....Derrick.

Droppleman and Bundy's No. 1 J. W. Cunningham, 250 ft. from the S and 1,066 ft. from the E lines of B. M. Ballard Sur. ....Rig up.

Harris & Joiner's No. 1 E. Howison, 225 ft. S, 185 ft. W of 79-ac. tract, William Humphreys Sur. ....T. D. 2,216 ft.

Concord Oil Co.'s No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ....Shut down 740 ft.

ROCKWELL COUNTY

J. F. Barron's No. 1 H. L. Lofland, center of 69-ac. tract in W. M. Bird Sur. ....Waiting on csg.; T. D. 120 ft.

KILGORE AREA—RUSK COUNTY

Crider and Manley's No. 1 R. A. Motley, 600 ft. from S and 1,150 ft. from W of J. T. McDaniels Sur. ....Derrick.

Harry Elliott's No. 1 Carroll, 175 ft. from N and 200 ft. from E of 7-ac. tract, W. R. Cook Sur. ....Location.

State Production Co.'s No. 1 Gipson, 630 ft. from N and 175 ft. from E lines of tract in T. Lloyd Sur. ..Drlg. 3,156 ft.

JOINER POOL—RUSK COUNTY

Armstrong's No. 1 Alford, 151 ft. from S and 1,080 ft. from W of survey, T. J. Moore Sur. ....Derrick.

British American Oil Co.'s No. 1 Cooper, 250 ft. from N and E of 45-ac. lease in Cadena Sur. ....Shut down 2,800 ft.

Bullock's No. 1 Alford, 1,300 ft. from S and 150 ft. from W of survey, T. J. Moore Sur. ....Shut down 2,953 ft.

Campbell Oil Co.'s No. 1 Compton, 600 ft. from N and W line of Simon Del Rio Sur., 1½ miles NW of Minden ....Derrick.

Dunnigan and Holt's No. 1 Cansler, 180 ft. N and W of SW cor. Gabe McIlroy 16.3-ac. tract in F. Cordova Sur. ....Waiting on cement 2,712 ft.

Golding & Murchison's No. 1 Kelly, 515 ft. N and 410 ft. E of SE cor. of E. E. Moore 200-ac. tract, Cadena Sur. ....Drlg. 850 ft.

Goude & Murray's No. 1 Priddey, C 2½-ac. tract, Overton Townsite, W. T. Tutt Sur. ....Derrick.

C. C. Julian's No. 1 Motley, 780 ft. from N and 1,673 ft. from W of survey, J. T. McDaniels Sur. ....T. D. 191 ft.

Mass and Tucker's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartimas Sur. ....Shut down 3,800 ft.

H. C. McBride's No. 1 Sue Hale, 150 ft. from S and 150 ft. from W of Sue Hale 88-ac. tract, John Darley Sur. ....Set 12½-in. csg. 212 ft.

Nat Saddler's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ....Shut down 2,200 ft.

Pitts et al's No. 1 Freeman, 1,000 ft. N of S line and 1,000 ft. E of W line of 181-ac. tract, J. Watkins Sur. ....Rig blew down.

Priest et al's No. 1 Mayfield, 155 ft. from N and W lines of 22-ac. lease in Daniel Clark Sur. ....Shut down 2,900 ft.

SMITH COUNTY

Adams and Berry's No. 1 T. O. Wright, 150 ft. from N line and 150 ft. from E line of Juan Vargus Sur. ....Set csg. 3,630 ft.

Bailey Gaunce et al's No. 1 S. S. Cook, 150 ft. from S and 150 ft. from W of S. S. Cook 20-ac. tract in 189-ac. tract, Juan Vargus Sur. ....Shut down 2,350 ft.

Ben Banner's No. 1 Lee White, 925 ft. from E line and 1,200 ft. from N line of Abraham H. Scott Sur. ....Shut down 3,350 ft.

Bunte et al's No. 1 Atkinson, 1,000 ft. from S line and 1,000 ft. from N line of 330-ac. tract, Calloway Dean Sur. ....Derrick.

Rex Cannon et al's No. 1 Buella Meansa ....Derrick.

Cotton Belt Oil Co.'s No. 1 C. S. Jackson, 500 ft. from N and 500 ft. from W of 39.88-ac. tract, Henry Mickleborough Sur. ....Shut down 4,002 ft.

Deason Oil Co.'s No. 1 T. O. Wright, 1,440 ft. from N and 250 ft. from W of T. O. Wright 86-ac. tract, Juan Vargus Sur. ....Set 6-in. at 3,660 ft.

East Texas Investment Co.'s No. 1 Colored Methodist Church, James Jordan Sur. ....Shut down 2,408 ft.

Hancock and McCarthey's No. 1 J. C. Cross, 200 ft. from E of road and 200 ft. N of S line of survey on a 13-ac. tract, Burbridge Sur. ....Shut down 72 ft.

McCarthy and Hancock's No. 1 Nellie Taylor, 250 ft. out of SW cor. of 73-ac. Taylor tract, F. M. Taylor Sur. ....Derrick.

Mid-Kansas Oil & Gas Co.'s No. 1 J. H. Sharp., 530 ft. W and 1,170 ft. from S of most northerly NE cor. 482.67-ac. tract in the M. De Los Santos Sur. ....Set 6⅝-in. csg. 3,645 ft.

Miller et al's No. 1 McDavid ....Spudded and shut down.

Morrison's No. 1 I. Roy, 330 ft. N and E from SW cor. of 87-ac. tract in Henry Cools Sur. ....Shut down 3,900 ft.

Phillips & Phillips' No. 1 Anna Morrison ....Set 10-in. csg. 33 ft.; shut down.

Republic Production Co.'s No. 1 Scroggins, 1,150 ft. from N and 160 ft. from W lines of W. W. Simms Sur. on 10.7-ac. lease ....Derrick.

M. M. Rowand et al's No. 1 Gibbons, 1,800 varas from W and 260 varas S of river (which is N line of survey), J. M. Garcia Sur. ....Shut down 3,610 ft.

Smith & Son's No. 1 S. S. Cooke, 1,875 ft. N and 231 ft. W from SW cor. D. Wright tract, Juan Vargus Sur. ....Drlg. 2,852 ft.

Sun Oil Co.'s No. 2 J. J. Denton, 250 ft. from N line and 425 ft. from E line of tract in the Juan Vargus Sur. ....Testing 3,711 ft.

The Texas Company's No. 3 Blackwell, 330 ft. from S and E lines of 100-ac. tract in James Jordan Sur. ....Location.

Gulf States Development Co.'s No. 1 S. S. Cooke, C of 5-ac. tract and lease in James Jordan Sur. ....Shut down 3,710 ft.

Tytex Oil Co.'s No. 1 Alex Weldert, 2,030 ft. from S and 525 ft. from E lines of Franklin T. Bodenheimer Sur. ....Derrick.

Vitex' No. 1 Irion, 150 ft. from S and E lines of 50-ac. tract in Mary Hughes Sur. ....Shut down 1,185 ft.

Yarber et al's No. 1 R. G. Wright ....Derrick.

TITUS COUNTY

Perry V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. ....Drlg. 2,300 ft.

Joiner et al's No. 1 Clayton Brown ....Shut down 2,250 ft.

Venza Oil Co.'s No. 1 McGill, 450 ft. from S and 662 ft. from W of H. C. Riggs Sur. ....Drlg. 5,750 ft.

UPSHUR COUNTY

Granite Oil Trust Co.'s No. 1 Victory, 3,200 ft. from W and 900 ft. from S lines of E. A. J. Evans Sur. ....Drlg. 3,250 ft.

Alma Petroleum Co.'s No. 1 J. W. L. Yount ....Waiting on cement 3,677 ft.

Bogle et al's No. 1 Victory et al, 420 ft. from E and 280 ft. from S of lease and most northern NE cor. of tract, E. A. J. Evans Sur. ....T. D. 3,789 ft.; show of oil, gas and water.

Cockrell et al's No. 1 C. A. Lee, 150 ft. from S and 150 ft. E of 26½-ac. tract, W. L. Palmer Sur. ....Derrick.

Callahan et al's No. 1 Lee R. Kay, 660 ft. from N and E lines of Charles O'Neal Sur. ....Derrick.

Calhoun et al's No. 1 J. R. Penn, 265 ft. from S line and E line of Penn 104-ac. tract, Joseph Manning Sur. ....Shut down 3,718 ft.

Compton and Letts' No. 1 J. C. Wilsford, 300 ft. from E line and 2,700 ft. from S line of survey, L. Lomzollas Sur. ....Drlg. 2,000 ft.

Cole and Butler's No. 1 D. F. Guest, 300 ft. out of NE cor. of Guest 129-ac. tract and survey ....Derrick.

Daisy Oil & Gas Co.'s No. 1 B. F. Phillips, 200 ft. out of SE cor. of 64-ac. tract, P. Whitestone Sur. ....Drlg. 3,340 ft.

Home Oil Co.'s No. 1 F. D. Futrell, 150 ft. out of SW cor. and 520 ft. from E and 400 ft. from S line of 7.6-ac. tract, A. Lumbrara Sur., south of Gilmer ....Drlg. 3,026 ft.

Humble Oil & Refining Co.'s No. 1 Reves, 450 ft. from S and 324 ft. of 28-ac. tract in G. W. Hooper Sur. ....Drlg. 120 ft.

Humble Oil & Refining Co.'s No. 1 Johnson, 320 ft. from S and W of 100-ac. tract of G. W. Hooper Sur. ....Drlg. 106 ft.

Humble Oil & Refining Co.'s No. 1 M. Mattox, 200 ft. from S and E lines of 61.6-ac. tract in J. Pineda Sur. ....Drlg. 3,562 ft.

A. D. King's No. 1 Lloyd, 156 ft. from N line of survey and 288 ft. from E line of 4-ac. tract, D. Sanches Sur. ....Drlg. 3,245 ft.

Tytex Oil Co.'s No. 1 C. B. Jones, 200 ft. from N and 165 ft. from E lines of 50-ac. tract in the Henry W. Augustine Sur. ....Showing oil 3,653 ft.

Smith Bros.' No. 1 J. W. Davis, 400 ft. from N and 800 ft. from W lines of S 200 acres of J. W. Davis 330-ac. tract in John Burleson Sur. ....Set 10-in. at 97 ft.

J. R. Smith's No. 1 J. B. Webb, 200 ft. N and 489 ft. W of SE cor. of W 20 acres of 71-ac. tract, G. W. Hooper Sur. ....Derrick.

Sorrels & Duffey's No. 1 J. W. Wooden, 200 ft. from E and 200 ft. S of survey, Isham Williams Sur. ....Drlg. 3,612 ft.

Sun Oil Co.'s No. 2 Watkins, 1,220 ft. N and 1,360 ft. W of most southerly SE cor., Jose Rinoda Sur. ....Shut down 2,332 ft.

Wheeler et al's No. 1 Webb, 300 ft. from N and 100 ft. E of road, approximately 4,840 ft. from W and 1,920 ft. from N of Hooper Sur. ....Shut down.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out of NE cor. of Hubbard 226-ac. tract, 3½ miles S of Canton, M. J. Cadena Sur. ....Shut down 1,020 ft.

Hart Petroleum Corp.'s No. 1 M. L. Cox, 1,785 ft. N of S line and 524 ft. E of W line of Cox 300-ac. tract in Nugent Headright Sur. ....Shut down 2,085 ft.

Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ....Shut down 2,300 ft.

Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. ....Shut down 2,450 ft.

W. P. Palmer et al's No. 2 W. P. Forster, 600 ft. from N and 450 ft. from E of SW cor. of Forster 151-ac. tract in the F. Montgomery Sur. ....Shut down 3,000 ft.

Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ....Shut down 2,860 ft.

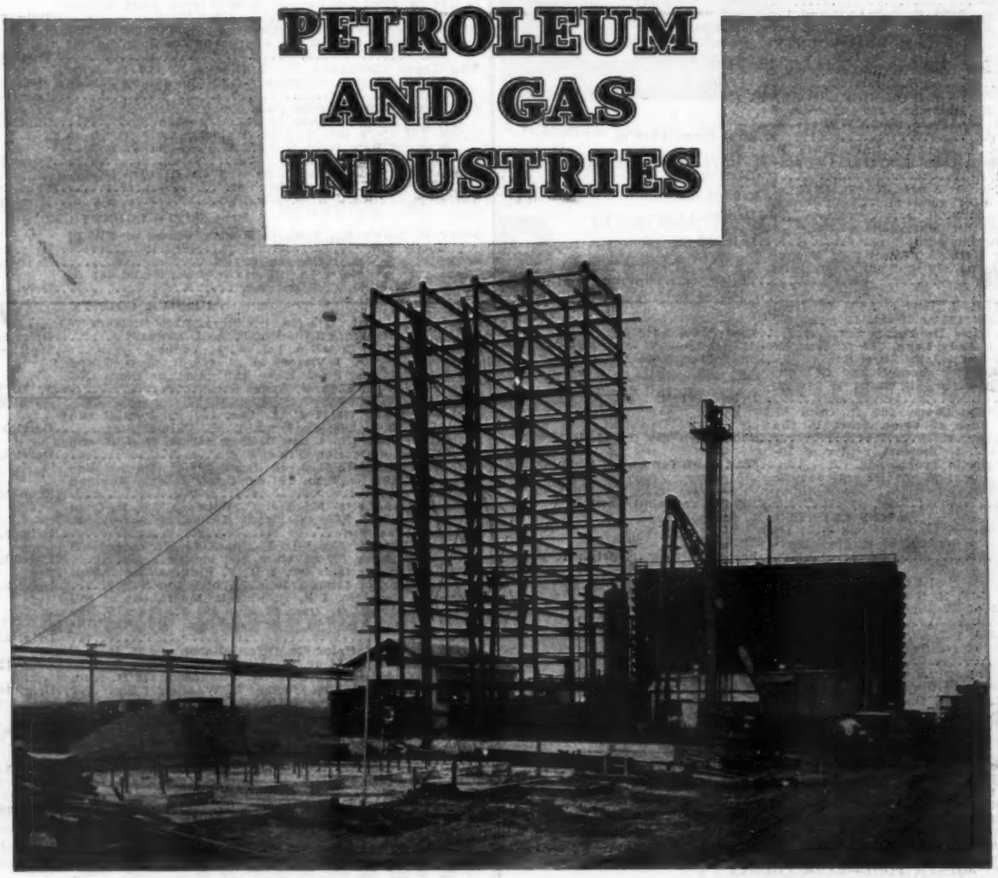
WOOD COUNTY

Brennan and Wood's No. 1 L. W. Minga, 300 ft. from NW cor. of survey and tract, Moses Stripling Sur. ..Derrick.

Wood County Dev. Co.'s No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. ....Shut down 2,008 ft.

Vitek Oil Co.'s No. 1 Rosa Bogel, 250 ft. from N and 500 ft. from W of survey, Sarah English Sur. ....Drlg. 3,090 ft.; top Pecan Gap 2,510 ft.; base 2,764 ft.

Braun
CONSTRUCTION
for the PETROLEUM AND GAS INDUSTRIES



ABSORPTION AND COMPRESSION PLANT

Responsibility, experience, and equipment of a contractor are of particular importance on work that is of the unusual. Whether or not the work embodies new and unstandardized processes or process features, our facilities are unsurpassed for the designing, manufacturing and constructing of economic and modern gasoline absorption, stabilization and compression plants, oil refining units, etc.

C. E. BRAUN & CO., INC.

ALHAMBRA, CALIFORNIA

NEW YORK , CHICAGO , TULSA , HOUSTON , LONDON

Brief Items for Petroleum Refiners

Coastal Petroleum Corp. Building New Refinery at Mobile

The Coastal Petroleum Corp., a new company with Victor Smith president and treasurer, and C. Hand, vice president and secretary, is building a 5,700-bbl. combination Pratt topping and cracking unit on Blakely Island opposite Mobile, Ala. The company has been capitalized for $200,000 and has established offices in the A. T. & M. Railroad Building in Mobile. The contract for the work was given to the J. P. Devine Manufacturing Co. with exception made for tankage. This was given to the Chicago Bridge & Iron Works. The contract provides that the plant be completed by December 15.

Because of its location opposite the state docks the company will be able to transport its products for export movement. The canal permits the loading of ships drawing 30 feet of water. A car ferry will carry the loaded tank cars from the island to the Mobile railroad yards.

Crude will be supplied by tankers from Texas City or New Orleans. At present it is the plans of the company to purchase East Texas crude and ship it to a Gulf Coast terminal where it will be loaded in tankers and shipped to the plant. The plant will include a viscosity breaker and will thus permit the manufacture of low cold test fuels from East Texas crude.

Other products to be manufactured include gasoline, kerosene, distillates, gas oil and flux oils. The company expects to distribute a major share of its production of these products through the southeastern states.

WOTOWITCH CHAIRMAN OF AVIATION OIL COMMITTEE

At the annual meeting of the Aeronautical Chamber of Commerce, held during the National Air Meet, Cleveland, Ohio, this week Richard A. Wotowitch, of Henry L. Doherty & Co., Cities Service Co., was elected chairman of the executive committee on fuels and lubricants.

This is one of the most important committees in the aviation industry having to deal with fuels and lubricants for all types of aircraft as well as to coordinate such efforts with all governmental and aeronautical organisations.

Mr. Wotowitch has arranged to set up his committee along very definite lines. Seven men representing the following organizations constitute this group: Maj. E. E. Aldren, Standard Oil Co. of New Jersey; G. French, Sinclair Oil Co.; A. L. Beale, Vacuum Oil Co. of New York; F. Shipman, Texas Petroleum Co. of New York; R. H. McLaren, Gulf Refining Co. of New York; Fred Foster, Richfield Oil Co. of New York; and R. A. Wotowitch, Cities Service Co. of New York.

Certain and specific rules have been adopted of which the outstanding one is, that a specific branch of the aviation industry has been assigned to each member of this committee, who in turn will select and appoint his own group of workers, thereby reducing the responsibilities on each respective member avoiding unwieldy committees and giving each member a greater range of initiative in his respective scope of activities.

REFINERY SALE DENIED

CHATHAM, Ontario, Sept. 19.—Reports that the Regal Oil & Refining Co. of Calgary was to be taken over by either the Continental Oil Co. or Imperial Oil, Ltd., have been officially denied by F. P. Book of Detroit, president of the Regal company.

IMPORTANT CHANGES UNDER WAY IN MANUFACTURING PROCESSES

By D. G. Brandt
Crew-Levick Co.*

Most of the recent development from the refiner's point of view has been in motor fuel and its production. With the overproduction of crude and increased amount of cracking, the volatility of the gasoline was increased to a point where vapor-lock became one of the major troubles of the motorist. Vapor-lock is the boiling of the gasoline in the fuel feed system which causes interruption of the fuel supply to the engine. The point at which vapor-lock occurs will depend upon the design of the fuel feed system, the vapor pressure of the gasoline, atmospheric temperature and altitude. The first is controllable by the automobile manufacturer and the second by the refiner. The fuel feed system should be designed in such a manner that the fuel temperature is kept at a minimum until it has reached the carburetor. This apparently has not been given serious consideration by some car manufacturers as test data taken on various makes of cars show temperature rises in the fuel in passing to the carburetor as high as 80° F. above the atmospheric temperature when the car was idled after being run at a constant speed of 40 miles per hour. Another car when operated under the same conditions showed a rise in temperature of only 27° F. This indicates that the first car would require a gasoline having a Reid vapor pressure of approximately 4 pounds while the latter would not vapor-lock on a gasoline of 9.5 pounds vapor pressure.

It has been known for a number of years that ease of starting and rate of acceleration of a car increase with increased vapor pressure or volatility of the fuel and the refiner has been striving to produce such fuels. During the past year he has arrived at that point only to find that the average automobile of today cannot use such volatile gasolines on account of vapor-lock. Thus the motor fuel being supplied today is a compromise and will of necessity be such until the present cars are replaced with cars equipped with proper designed fuel feed systems in which all heat is kept away from the fuel until after it reaches the carburetor.

The average Reid vapor pressure of the summer grade gasoline now being sold is approximately 7 pounds. The average rise in temperature on various makes of cars on idling after a 40-mile per hour run is slightly over 50°. If this average were reduced to one-half its present value gasolines of 10 pounds vapor pressure

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*Annual meeting, National Petroleum Association, Atlantic City, N. J.

CANADIAN OIL IMPORT VALUES REVISED AGAIN

WASHINGTON, D. C., Sept. 19.—New values on refined gasoline for import duty purposes have been established by the Canadian government superseding values established July 11, 1931.

The duty is in cents per United States or wine gallon as follows:

Pennsylvania, New York and district which includes the Atlantic Seaboard, 7.363; Toledo, Detroit, Cleveland and district, 7.976; Chicago and district, 6.876; Minneapolis and district, 7.226; Wood River, St. Louis and district, 6.476; Mid-Continent district, which includes the States of Oklahoma, Kansas, part of Missouri, part of Arkansas and North Texas, 4.726; South Texas, Louisiana and district, 6.276; Wyoming and district, 4.726; and Montana and district, 7.726.

The above prices, it is stated, are based on current prices, as of August 27, 1931, of crude oil in different fields and will be adjusted as crude prices change. The regular import duty on refined gasoline is specific 2½ cents per Imperial gallon, and is therefore not affected by these minimum values.—C. E. K.

NEW MONTREAL REFINERY

CHATHAM, Ontario, Sept. 19.—The new refinery of the British American Oil Co. is reported to have been placed in full operation, after running for a short time at around 75 per cent of capacity. The plant which cost around $2,000,000 has an estimated crude oil capacity of 9,000 bbls. a day, with a gasoline output of 215,000 gallons. The company's Montreal and Toronto refineries have an estimated daily output of 10,000 bbls. of gasoline. The British American Oil Co. recently chartered a fleet of five ocean tankers and has also placed three lake tankers in commission between Toronto and Montreal.

PETROLEUM SECTION OF A.C.S. IN PONCA CITY

The petroleum group of the Oklahoma section of the American Chemical Society will hold its first meeting of the 1931-1932 season in Ponca City Saturday, September 26. A program has been arranged by Dr. Paul Zurcher of the Continental Oil Co. and will include a visit to the Continental plant as well as papers of interest on immediate refinery problems. The announcement of the meeting includes the following program:

The meeting will begin at 10:30 a. m. at the Conoco Club. The following papers will be read:

Methods of Process Control, by J. S. Hume.

Our Gasoline Plant, by J. A. Jamison, C. C. Chaffee.

Recent Investigations on Sulphur Compounds, by Paul Zurcher.

Cross Still Hot Oil Operation, by J. H. Olehy.

Twenty minutes are allowed for each paper, followed by 10 minutes of discussion.

Lunch will be served at the club at 12:30, charge 75 cents.

At 2 p. m. those attending will visit the refinery in groups, with guides. Of special interest will be our new Cross stills, the vacuum still, the gasoline plant and the pressed distillate unit, all recent additions.

The Conoco Club is northeast of the town. Take Highway 77 to the hospital, then turn east. There are signs showing the way.

PLANT OPERATING

The small skimming plant of the Goshen Oil Refining Co. located at Torrington, Wyo., is now operating. The plant will refine around 300 bbls. of crude oil daily. The products will be distributed locally. M. A. Eaton is president and general manager of the company. E. D. Bishop, formerly of The Texas Company, is superintendent of the plant.

Utilization of Acid Sludge As Refinery Fuel Shows Increase

Both production and consumption of acid sludge at petroleum refineries increased in 1930, according to a canvass just completed by the U. S. Bureau of Mines, Department of Commerce. The gain in the use of this material as a refinery fuel was greater than the increase in output, indicating a tendency towards more complete utilization. It is estimated that 4 per cent of the total heat units utilized at oil refineries is now supplied through the burning of acid sludge. While this percentage indicates that acid sludge is only of minor importance as a refinery fuel, many refiners have found it economical to install the special burners necessary to handle this material. These refiners not only effect a saving through the heat units obtained, but are enabled to dispose of a waste product, which in the past has generally been regarded as a necessary evil and dumped into pits.

Acid sludge is a material resulting from the use of sulphuric acid in treating various refined products. Its composition is exceedingly complex and varies considerably, depending on the nature of the oil treated, the strength of the acid employed in the treating process and the technique used. Acid sludge is produced both in the treating of light refined products, such as gasoline, and heavy products, such as lubricating oil. In general, the acid sludge produced in treating the light products contains a relatively low percentage of tarry matter, and from the standpoint of volume is relatively unimportant as compared with the more viscous sludge obtained from the treating of lubricating oils. Accordingly, only the plants which produced lubricating oils during 1930 were canvassed. A few companies indicated that they did not keep a record of acid sludge operations, but the majority supplied all the data requested.

The indicated production of acid sludge in 1930 totaled 8,568,000 bbls. Comparable figures for 1929 are not available, but it is believed that the 1930 total represents a substantial increase over the previous year.

Acid sludge is disposed of in several ways. In many cases, particularly where the output is small, the sludge is turned into a pit and no further attention is

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PHILLIPS ADDS STATIONS

The Phillips Petroleum Co. have let a contract for the construction of six more filling stations in the Kansas City, Mo., territory. The company already has a large number of stations as the result of merging with the Independent Oil & Gas Co. there several years ago.

The company is intensively developing the marketing of its products in the Kansas City territory principally because of the fact it has a refinery there and a large system of trucks has been built up supplying a large volume of furnace oil and fuel oil to the local trade as well as gasoline and lubricants. Contracts for the stations were given the Austin Co.

TEST RUNS MADE

Test runs have been made at the Hutchinson, Kans., plant of Hutchinson Refining Co. The plant was recently acquired by Carpenter & Sons, operators of filling stations in Iowa. The company has purchased some crude oil from the Welch Pool in Rice County, 14 miles north of Hutchinson, and arrangements are also being made to secure crude from the Schurr Pool in Rice County.

Manufacture of Natural Gasoline

The Texas Co. Will Immediately Rebuild Kettleman Hills Plant

The Texas Company will begin immediately the rebuilding of its natural gasoline plant in the Kettleman Hills area which was destroyed by fire a week ago. This was the first plant to be built in the North Dome of the Kettleman Hills area. It is said to have represented an investment of $600,000 all of which is covered by insurance.

The structure, which covered about an acre, was located about a quarter of a mile from the discovery well now standing idle after being shut in some weeks ago under orders of the Kettleman North Dome Association.

Through a loop hook-up system employed by Kenda in prorating natural gas among member plants, redistribution of the wet gas allotted to The Texas Company can be easily arranged until such time as the company has replaced the plant and once more is prepared to handle its share.

This is the second disastrous blaze to sweek absorption plants in the North Dome. The first was less than two years ago when the original plant constructed for the Los Nietos Oil & Refining Co., was destroyed just prior to its being turned over to the Petroleum Securities interests. A new plant, a duplicate of the first, replaced the loss.

The Texas replacement plant will be thoroughly modern and efficient in every respect.

MORE BUTANE GAS PLANTS BUILDING IN CALIFORNIA

LOS ANGELES, Calif., Sept. 19.—Southwest Gas Corp., Ltd., has recently completed the installation of its butane gas plant at Victorville where it has about 75 consumers already connected. Victorville and immediate environs accessible to the system have about 1,800 population, and will have more when the two big cement plants are operating.

The first plant to be built was located at Barstow. It has been operating several months and has close to 150 consumers on its lines.

The company is now installing a plant at Winslow, Ariz., which will be the next to go into operation. It has been reported as seeking franchises in other northern Arizona towns along the Santa Fe. Harold Laub, general manager, is now at Winslow overseeing the work of installation.

MAY BUILD ICE PLANTS

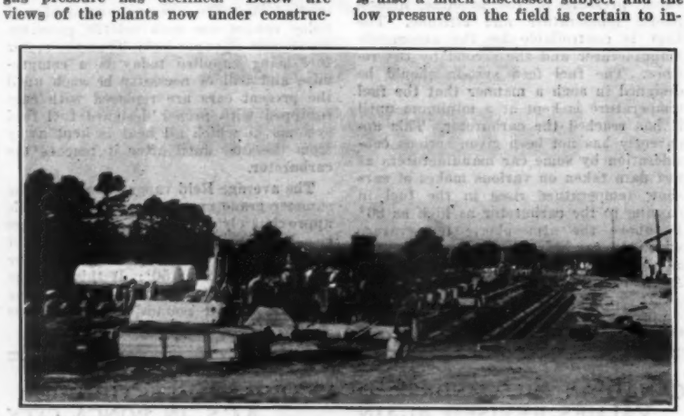
LOS ANGELES, Calif., Sept. 19.—Considerable interest is being manifested in California and other West Coast states in the production of dry ice from gas. Some of the propositions now under consideration propose to take the residue gas from natural gasoline plants to produce the carbon dioxide used in the manufacture of the dry ice. These plants if they are built will be operated in conjunction with the gasoline plants.

Two companies are reported to be considering the installation of the ice plants in the Kettleman Hills Field of California. There is a large supply of gas coming from the gasoline plants in excess of the requirements of the natural gas pipe lines connected to the field.

While these plans are under consideration two projects are announced for the manufacture of dry ice without the use of natural gas. One company has completed plans for the construction of a plant to operate with carbon dioxide deposits in Oregon. Another company proposes to operate with gas obtained in the operation of a large dolomite deposit north of San Bernardino, Calif.

COMPANIES INVESTIGATING BEFORE BUILDING PLANTS IN EAST TEXAS

Although practically all major companies operating in the East Texas Field have made tentative plans for the building of natural gasoline plants there, none have definitely announced it will start construction until certain factors are dealt with. Except for the Humble Oil & Refining Co.'s two repressuring plants now well under way on the Bateman and the London blocks, there is little promise of any natural gasoline production coming from the field within the immediate future. These undertakings are not for the making of natural gasoline but for the increased recovery of crude after the gas pressure has declined. Below are views of the plants now under construction. In each case all new material is being used with the exception of the compressors. These are being brought to the plant site from plants in fields where the pressure has gone off, particularly in the West Texas area.



Humble Oil & Refining Co. repressuring plant being built at Kilgore in the East Texas area.

Other companies having plans for the erection of plants there include the Barnsdall Oil Co., the Sinclair Oil & Gas Co., the Arkansas Natural Gas Co., Phillips Petroleum Co. and the Magnolia Petroleum Co. Plans for the erection of a plant by the Barnsdall company are probably further along than any of the rest. The company has been attempting to line up an adequate gas supply to warrant a large plant and until this has been done the location of it will remain indefinite.

All companies are faced with the problem of securing enough gas to justify a large unit and today's market obviously requires the operation of a relatively large plant in order to reduce the unit cost of operation to a figure low enough to satisfy the market. A plant of 40,000 to 50,000 gallons capacity appears to be the most logical for that field but this in turn will require laying gathering lines over an area of a radius of 2 miles. In addition to the large investment in lines, it has been pointed out that an exceptionally large investment in meters would be needed. In many areas there would be a meter on every 10 acres.

The question of a declining gas supply is also a much discussed subject and the low pressure on the field is certain to indicate the need for caution in developing it for natural gasoline.

The Sinclair Oil & Gas Co. has made an extensive survey of its properties with the idea of building a plant at such a time as economic conditions warrant but as yet the company has chosen to suspend such a program. It has been pointed out that refiners running East Texas crude require little natural gasoline for blending with the gasoline made directly from the crude. The experience of the Sinclair company might be cited in this connection. The Houston refinery has been operating on East Texas crude almost exclusively and has been cracking all of the residuum. As a result the Houston plant is recovering from the stabilizing plant more than the refinery's need and some light blending material is being supplied from here to the Chicago refinery.

Humble Oil & Refining Co. plant building on the London block in Rusk County of the the East Texas Field.

MAINTENANCE IMPORTANT IN MEASUREMENT OF GAS

The Booster*

A few years ago the demand for natural gas was small and little effort was made to account for it. The status of natural gas now, however, has been reversed. The industrial and domestic development during the past 15 years has created a demand for both the gas and the gasoline content which has naturally caused the value to increase and brought about the necessity for its closer accounting. It was evident that to account for the gas properly, some accurate but flexible metering method should be used which would give best results on both large and small volumes of gas. To meet this requirement, improvements were applied to the orifice meter, which is now used almost exclusively throughout the industry.

Practically all of our plants are handling gas from a large number of lessors, the wet gas being commingled into one system. The accounting to the individual lessors for gasoline extracted and dry gas returned or sold is based upon the orifice meter readings obtained through the field and plants. It is, therefore, obvious that accurate measurements must be obtained at all times.

The orifice meter, which is used to obtain this measurement, is in itself practically foolproof, under ideal conditions, but due to the fact that many variable conditions enter into the picture the meter is placed under quite a handicap. It is imperative that those connected with gas measurements keep in touch at all times with changing conditions and make corrections wherever metering might be affected. The following checks

*Published by the Standard Gasoline Co.

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IMPERIAL SELLS LIQUEFIED GAS

NEW YORK, Sept. 19.—Imperial Oil, Ltd., is negotiating with a number of small municipalities in Canada for supplying butane and propane, to be shipped in drums or tank cars. Imperial's refinery at Calgary, which runs largely on crude from the Turner Valley Field, produces refined products containing highly volatile fractions, and it is planned to equip the Calgary plant for the fractionation of gasoline for the recovery of the highly volatile parts.

There are many small communities in western Canada not now supplied with gas, and it is expected that Imperial will contract to furnish gas to a number of these municipalities. Imperial Oil will act purely as a wholesaler and will not attempt the retail distribution of gas.

ASSOCIATION BULLETIN READY

At a recent meeting of the board of directors of the California Natural Gasoline Association announcement was made that the association would now make available bulletin TS-311 explaining a tentative standard method for the analysis of natural gasoline by fractional distillation. The bulletin is the result of considerable research work on the part of the committee on fundamental analyses and will be distributed to the industry at $1 per copy. Offices of the association are at 314 Paramount Building, Los Angeles.

BUTANE-AIR PLANT

The Standard Oil Co. of California through its subsidiary, the Natural Gas Corp., is steadily expanding its butane-air plant facilities in Oregon towns. The corporation is reported to have completed plans for the installation of a plant and gas distributing facilities in the town of Calles.

ACID SLUDGE USED AS FUEL SHOWS INCREASE

(Continued from Page 111)

paid to it. Acid sludge so disposed of during 1930 amounted to approximately 163,000 bbls. The majority of the companies do not keep a record of the quantities of sludge turned into pits, hence information as to the total storage is somewhat indefinite. However, the stocks of those companies which normally use all their sludge production as fuel and which might have occasion to draw on their sludge pits, amounted to 64,000 bbls. on May 31, 1931.

At some plants the sludge is conveyed directly to the burners and is used as fuel with no attempt to separate the acid. This practice is only followed where the plants are isolated as the fumes from the stack contain a high percentage of sulphur dioxide, with some sulphur trioxide. The acid in the sludge may be neutralized before burning by the addition of a caustic, but the additional expense limits the application of this method. The total quantity reported burned as fuel without acid treatment in 1930 amounted to 1,244,000 bbls.

In a number of cases the sludge is fluxed with fuel oil and the resultant mixture of sludge, acid and fuel is burned; the quantity of sludge so handled in 1930 amounted to 1,436,000 bbls., the fuel oil used in the fluxing totaled 1,358,000 bbls.

The major portion of the acid sludge produced is treated for acid recovery. This may consist only of separating the free acid by settling, but it usually involves the use of considerable equipment, such as lead-lined tanks, where the acid is washed out with warm water and drawn off. The sludge left in the tanks is pumped out while hot and in the majority of cases is blended with fuel oil and burned. The indicated amount of weak acid recovered from sludge in treating plants in 1930 amounted to 2,411,000 bbls., the secondary or residual sludge that was fluxed and burned totaled 2,899,000 bbls. These data indicate that approximately 45 per cent of the average acid sludge consists of acid and water.

Some refineries, particularly the small ones operating in western Pennsylvania, deliver their sludge back to the acid manufacturer who presumably recovers the acid. This appears to be a satisfactory solution of the sludge problem at a small refinery although the transportation of the sludge back to the manufacturer undoubtedly presents some difficulties.

The refinery districts which lead in the production of lubricants are the East Coast, Appalachian, and Texas Gulf Coast. These were also large producers of acid sludge, although in the Appalachian district the crude used does not require as much acid treatment as the majority of the other "high-lube" crudes.

Preventing the sludge from congealing in the pipes is regarded as the greatest difficulty encountered in burning heavy acid sludge. However, if the sludge is kept hot, there is very little danger of its becoming too viscous to handle. Considerable progress has been made in the design of equipment for the handling and burning of acid sludge. The first attempts to use acid sludge as a refinery fuel ended disastrously because the acid ate its way through the linings and grates. The real impetus to the use of this fuel began with the development of the rotary burner and the use of acid-resisting metals. Rotary burners have been developed to utilize all grades of acid sludge from the thin sludge produced from the treating of gasoline to the solid material dug out of storage pits.

Information supplied by the companies indicates that acid sludge varies widely in heat content but averages approximately 4,500,000 B.t.u. per barrel. Using this factor, the total sludge burner at refineries in 1930 yielded about 25,000,000,000,000 B.t.u., or approximately 4 per cent of the total heat generated.

Data as to the cost of burning acid sludge as refinery fuel are very meager; the few figures available indicate a cost of about 9 cents per barrel, or about 2 cents per 1,000,000 B.t.u. generated. This represents an extremely low figure, and is considerably below the cost where the fuel is purchased.

OIL MAN'S CALENDAR

SEPTEMBER

21-25—Boston, Mass., Exposition, American Society for Steel Treating.

23-26—Asheville, N. C., American Trade Association Executives.

24-25—Lufkin, Tex., Southwestern District, A.P.I. Division of Production, Angelina Hotel.

28-29—Atlantic City, N. J., National Association of Motor Bus Operators, Hotel Ambassador.

OCTOBER

2-3—Houston, Tex., Petroleum Division, American Institute of Mining and Metallurgical Engineers.

12-15—Birmingham, Ala., U. S. Good Roads Association Convention, Tutwiler Hotel.

12-16—Chicago, National Safety Council.

12-16—Atlantic City, N. J., American Gas Association.

14-16—Pittsburgh, Pa., Society of Industrial Engineers.

27-29—Washington, D. C., S.A.E. National Transportation and Maintenance Committee, Shoreham Hotel.

NOVEMBER

10-12—Chicago, twelfth annual meeting, American Petroleum Institute, Stevens Hotel.

16-21—Pittsburgh, Pa., third International Conference on Bituminous Coal, Carnegie Institute.

30-Dec. 4—New York, N. Y., Annual Meeting, American Society of Mechanical Engineers.

DECEMBER

7-12—Atlantic City, N. J., Trade Show, Motor and Equipment—National Standard Parts Association.

9-11—Atlantic City, N. J., American Institute of Chemical Engineers.

28-31—Tulsa, Okla., Geological Society of America, Mayo Hotel.

1932

JANUARY

9-15—Detroit, Mich., Convention and Road Show, American Road Builders Association, Airport Building.

9-16—New York, National Automobile Show.

30-Feb. 6—Chicago, Ill., National Automobile Show.

MARCH

17-19—Oklahoma City, Okla., American Association of Petroleum Geologists.

IMPORTANT CHANGES ARE UNDER WAY

(Continued from Page 111)

could be used to the benefit of both refiner and motorist.

During the year the industry has put the new yardstick for measuring the antiknock quality into use; that is the octane number is being used in specifications and like all new tests is much in the foreground. Volatility which had been considered the most important property of a motor fuel is now in second place and octane number has replaced it. Although the new C.F.R. engine for testing antiknock has not been officially approved, it is available for use and fairly consistent results are being obtained with it. As yet there has been very little work done on correlation of engine performance in road tests with various octane number fuels. This must be done before the true value and limitations of the tests can be established.

Octane Number

The highly competitive situation in the gasoline market has forced the refiner to continuously raise the octane number of the regular grade of gasoline until the average difference between the regular grade and premium fuels is approximately 9 octane number and in many cases lesser differences are indicated. Thus we find the gasoline of today a very different product from a few years ago and the equipment necessary to produce such fuels requires large plant investments and continuous research to meet the specifications from the various types of crudes available.

To meet the requirements for higher antiknock fuels the refiner has had to send a higher percentage of his crude runs through the cracking equipment. But even this now falls short of the requirement when the plant is processing a crude of high natural gasoline content. An average Mid-Continent crude when processed for maximum gasoline yield in the usual topping and cracking operation will yield a gasoline of approximately 65 octane number when the straightrun and cracked gasolines are blended together. Various types of cracking equipment may vary this figure slightly. This seems to be the limit for this type of operation and has brought a new type of operation into use commonly referred to as "reforming." With this type of operation the gasoline is cut into two fractions, a light gasoline and a heavy gasoline or naphtha. The heavy gasoline is sent through the reforming unit and cracked at a high temperature under pressure and the balance of the crude is cracked in the usual manner. The gasoline from the three sources when blended together will have an octane number of 70 to 71.

Similar results can be accomplished in cracking units designed to crack the crude direct but the variations in these units for handling various grades of crude somewhat complicates the design, and such units generally do not always fit into an existing refinery picture. They do, however, fill a need when building a new refinery (if that will ever be done again) or for increasing the capacity of an existing plant where all the additional crude is to be run entirely to gasoline.

Low pressure vapor phase cracking, although producing high antiknock fuels, has not met with a high degree of success due to the high gum content of the fuel and lack of stability over a period of time. Vapor phase coils have been used in combination with liquid phase units with some degree of success but here the major quantity of gasoline is produced from the liquid phase and the combination of the two products at the high temperature tends to stabilize the vapor phase product.

Stabilization

All cracking units produce fixed gases and an excess amount of butane over and above the amount that can be used in the present day gasoline. The amount of these products that are retained in the pressure distillate will depend upon the pressure and temperature of the condenser system and if not removed will result in high treating and rerun losses and high vapor pressure gasoline.

This condition has brought into use the pressure distillate stabilizer. The design of these units is similar to the stabilizers used in absorptions, gasoline plants and serve a similar purpose. They are nothing more than a very efficient fractionating column, designed for close fractionation and to operate under pressure. The operation of these units is somewhat different than the usual distillation equipment in that the major control is at the bottom of the column rather than the top. The bottom conditions are set to pass distillate of a given vapor pressure while the top is controlled to pass all the hydrocarbons lighter than butane and the excess butane over that not required for producing the proper vapor pressure distillate. The reflux ratio is relatively high and such that substantially none of the hydrocarbons heavier than butane will be carried out with the gas. If there is a market for butane and propane these products can also be recovered, but this recovery will require additional columns to make the separations. With the proper use of stabilizers substantially all propane can be removed and the proper amount of butane retained to produce a distillate of the desired vapor pressure.

COMPLETED PROGRAM FOR HOUSTON MEETING

The completed program for the fall meeting of the petroleum division of the American Society of Mining and Metallurgical Engineers to be held at the Lamar Hotel, Houston, Tex., October 2, 3 and 4, follows:

Friday Morning, October 2

"Geology, Development and Engineering of the East Texas Oil Field," by F. H. Lahee, Sun Oil Co., Dallas, Tex.

"An Experimental Study of the Pressure Gradient Within the Oil Sand About a High-Pressure Producing Well," by L. C. Uren, University of California, Berkeley, Calif.

"The Relation Between Gas Energy and Oil Production," by B. B. Boatright, Colorado School of Mines, Golden, Colo.

"Advantages of Flowing Wells Through Tubing," by H. M. Marsh, General Petroleum Corp., Los Angeles, Calif.

Friday Afternoon

"Determination and Application of Depth Pressures in the Yates Field, Texas," by Dale Nix, California Co., Midland, Tex. Discussion by P. P. Gregory.

"Reservoir Pressures in the Hobbs Field, New Mexico," by R. S. Christie, Amerada Petroleum Corp., Hobbs, N. Mex.

"Recent Development and Use of Bottom Hole Chokes," by J. S. Ross, Southern States Co., Shreveport, La.

"Design of Flow Strings," by M. Albertson, Shell Petroleum Corp., Dallas, Tex.

"Flowing Wells with Small Tubing," by R. R. Hawkins, The Texas Company, Tulsa.

Saturday Morning, October 3

"Stabilizing Influences for the Petroleum Industry," by Earl Oliver, Ponca City, Okla.

"Conflicting Recommendations from the Petroleum Industry," by C. V. Terrell, chairman Railroad Commission of Texas, Austin, Tex.

"Authority of the State to Regulate Production," by Fred Upchurch, Assistant Attorney General of Texas, Austin, Tex.

Saturday Afternoon

"Salt Domes for Engineers," by Wallace E. Pratt, Humble Oil & Refining Co., Houston, Tex.

Symposium and Local Practice and Problems.

A symposium on local practice and problems in the Gulf Coast fields is being arranged by the Houston committee. It will include discussion of such matters as drilling and coring bits; methods and technique of cap rock drilling; foundation and transportation problems; well location and well spacing problems in rim production fields.

TWO CENTS A BARREL TAX

AUSTIN, Tex., Sept. 21.—The fight to place a 2-cent per barrel tax on oil production in lieu of the 2 per cent tax took a new turn when Representative Milton West, Brownsville, introduced a bill to provide that the 2 per cent tax should have a minimum of 2 cents per barrel, regardless of the value of the oil. Though the subject has not been included under the governor's call the bill was sent to the revenue and taxation committee for consideration.

West sponsored a bill at Governor Sterling's request in the preceding session that would have changed the 2 per cent to a flat 2-cent per barrel tax. It failed of passage.

CONTINENTAL SUPPLY CATALOG

Catalog No. 3, 1931, of the Continental Supply Co., like its predecessors, is a compendium of tools, supplies and equipment used in all branches of oil and gas development. Its 1,587 pages describe and illustrate virtually every mechanical device employed in this field. An idea of the exhaustive character of the book may be obtained from the fact that the index alone takes 25 closely printed pages.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

OKLAHOMA (Group 3)—	Sept. 22		Sept. 15		Sept. 8	
50-52 450 endpoint	.03		.03½	.04	.04¼	.04½
56-58 450 endpoint	.02⅞	.03	.03½		.04	.04⅛
58-60 437 endpoint (U. S. Motor)	.03	.03½	.03½	.04½	.04¼	.05
60-62 437 endpoint	.03	.03½	.03½	.04½	.04¼	.05
60-62 400 endpoint	.03¼	.03½	.03¾	.04½	.04½	.05
64-66 375 endpoint	.03½	.04	.04	.05	.04¾	.05¼
68-70 360 endpoint	.03¾	.04¼	.04¼	.05	.05	.05¼
64-66 437 endpoint (blend)	.03	.03¼	.03½	.03¾	.04¼	.04½
NORTH TEXAS—						
50-52 450 endpoint	.02¾	.03	.03¼	.03½	.04	.04¼
58-60 450 endpoint	.02¾		.03¼		.04	.04¼
58-60 437 endpoint (U. S. Motor)	.02¾	.03	.03¼	.03½	.04	.04½
60-62 400 endpoint	.02½	.03	.03½	.03⅝	.04¼	.04¾
64-66 390 endpoint	.03¼	.03½	.03⅝	.03¾	.04½	.04¾
64-66 375 endpoint	.03½	.03¾	.03⅞	.04½	.04¾	.05
68-70 360 endpoint	.03⅝	.03¾	.04	.04½	.05	.05¼
64-66 437 endpoint (blend)	.02¾	.03	.03¼	.03½	.04¼	.04½
*NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.03¾	.04	.04½		.05	.05¼
*ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.03¾	.04	.04½	.04¾	.05	.05¼
PENNSYLVANIA—						
52-54 Naphtha	.05		.05		.05	
54-56 Naphtha	.05		.05		.05	
58-60 Gasoline	.05¼	.05⅝	.05⅝		.05⅝	
60 Gasoline	.05⅝		.05¾		.05¾	
62 Gasoline	.05⅝	.05½	.05¾		.05¾	
64 Gasoline	.06		.05⅞	.06	.05⅞	.06
68-70 350 endpoint gasoline	.06½		.06¼	.06½	.06¼	.06½
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.05	.06	.04½	.05½	.05½	.06½
58-60 400 endpoint domestic gasoline	.05¼	.06¼	.05	.06	.05⅝	.07
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.03	.03¼	.03	.03½	.04	.04½
58-60 437 endpoint (U. S. Motor)	.03	.03½	.03⅛	.04	.04⅛	.04¼
60-62 400 endpoint	.03⅛	.03½	.03½	.04	.04¼	.04½
64-66 375 endpoint	.03⅜	.03⅝	.03½	.04	.04⅞	.05
68-70 360 endpoint	.03⅞	.04¼	.04	.04½	.05	.05¼
64-66 437 endpoint (blend)	.02⅞	.03⅛	.03	.03¼	.04¼	
‡GULF COAST (Export)—						
58-60 U. S. Motor	.05		.05		.05	
60-62 400 endpoint	.05½		.05½		.05½	
61-63 390 endpoint	.05¼		.05¼		.05¼	
64-66 375 endpoint	.05½		.05½		.05½	

*Louisiana, Arkansas and Mississippi delivery. †For Pacific Coast consumption. ‡Due to misunderstanding covering reports of prices by branch offices, the Gulf Coast export gasoline prices were incorrect as published in the August 27 and September 3 issues. The prices as of August 25 in August 27 issue and for September 1 in September 3 issue should have been the same as published in this issue for September 15 and September 8.

NATURAL GASOLINE

OKLAHOMA (Group 3)—	Sept. 22		Sept. 15		Sept. 8	
Grade A, 72-79.9, 375 e.p., rec. 90%	.04		.03⅞	.04	.04¼	.04½
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03⅞	.04	.03⅞	.04	.04¼	
Grade B, 76-83.9, 375 e.p., rec. 85%	.03⅞	.04	.03⅞		.04¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.03⅞		.03⅞		.04¼	
Grade C, 80-92, 375 e.p., rec. 78%	.03⅞		.03⅞		.04¼	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03⅝	.03¾	.03⅝	.03¾	.04¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03⅝		.03⅝		.04	
Grade B, 76-83.9, 375 e.p., rec. 85%	.03⅝		.03⅝		.04	
Grade BB, 84-92, 375 e.p., rec. 85%	.03⅝		.03⅝		.04	
Grade C, 80-92, 375 e.p., rec. 78%	.03⅝		.03⅞		.04	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.04		.04		.04¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.04		.04		.04¼	
Grade C, 80-92, 375 e.p., rec. 78%	.04		.04		.04¼	
CALIFORNIA—						
75-78 375-390 endpoint	.04½	.05¼	.04½	.05	.04½	.05
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03¾		.03¾		.04¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¾		.03¾		.04¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.03¾		.03¾		.04¼	

BURNING OIL

OKLAHOMA (Group 3)—	Sept. 22		Sept. 15		Sept. 8	
41-43 water white kerosene	.01⅞	.02	.02	.02⅛	.02	.02⅛
42-44 water white kerosene	.02⅛	.02¼	.02⅛	.02¼	.02⅛	.02¼
NORTH TEXAS—						
41-43 water white kerosene	.01⅞	.02	.01⅞	.02	.01⅞	.02
40-41 water white kerosene	.01¾	.01⅞	.01¾	.01⅞	.01¾	.01⅞
*NORTH LOUISIANA—						
41-43 water white kerosene	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
*ARKANSAS—						
41-43 water white kerosene	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
PENNSYLVANIA—						
43 Kerosene prime white	.03⅝		.03⅝		.03⅝	
45 Kerosene water white	.03½		.03½		.03½	
46 Kerosene water white	.03⅞		.03⅞		.03⅞	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04	.05	.04	.05	.04	.05
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.01⅞	.02	.01⅞	.02	.02	.02⅛
42-44 water white kerosene	.02	.02⅛	.02	.02⅛	.02⅛	.02¼
GULF COAST (Export)—						
41-43 prime white	.03½		.03½		.03½	
44 prime white	.03½	.03¾	.03½	.03¾	.03½	.03¾

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

OKLAHOMA (Group 3)—	Sept. 22		Sept. 15		Sept. 8	
Below 18 gravity Fuel Oil, per bbl.	.22½	.27½	.22½	.27½	.22½	.27½
18-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
20-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
22-26 Fuel Oil, per bbl.	.27½	.32½	.27½	.32½	.27½	.32½
24-26 Fuel Oil, per bbl.	.32½	.37½	.32½	.37½	.32½	.37½
26-30 Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.45
28-30 Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.45
32-36 Gas Oil (industrial)	.01⅛	.01¼	.01⅛	.01⅛	.01⅛	.01¼
32-36 Gas Oil (straw color, high cold test)	.01⅛	.01¼	.01⅛	.01¼	.01⅛	.01¼
32-36 Gas Oil (straw color, low cold test)	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
36-38 Distillate	.01⅜	.01½	.01⅜	.01½	.01⅜	.01½
38-40 Straw Distillate	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝

Note—Fuel oils over 40 cold test generally 5 to 10 cents per barrel less.

NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.20	.25	.20	.25	.20	.25
24-26 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
32-36 Gas Oil (industrial)	.00⅞	.01	.00⅞	.01	.00⅞	.01
38-40 Straw Distillate	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
*NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.45	.55	.45	.55	.45	.55
30-32 Gas Oil (low cold test)	.01½	.01¾	.01½	.01¾	.01½	.01¾
*ARKANSAS—						
33-36 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
30-32 Gas Oil	.01½	.01¾	.01½	.01¾	.01½	.01¾
16-22 Refinery Fuel Oil, per bbl.	.45	.50	.45	.50	.45	.50
GULF COAST (South Texas)—						
Gas Oil	.02¼	.02½	.02½	.02¾	.02½	.02¾
Bunker C Fuel (cargo lots), per bbl.	.43	.48	.45	.50	.45	.50
Bunker C Fuel (small lots)	.55		.55		.55	
PENNSYLVANIA—						
30-34 Fuel Oil	.02¾	.03	.02¾	.03	.02¾	.03
36-40 Gas Oil	.03		.03		.03	
CALIFORNIA—						
42-45 480 endpoint engine distillate	.05	.06	.05	.06	.05½	.06½
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.60	.80	.60	.80	.60	.80
15-19 Fuel Oil (cargo lots, at tidewater), bbl.	.55	.75	.55	.75	.55	.75
†15-19 Fuel Oil (f.o.b. tank cars), bbl.	.45	.75	.45	.75	.45	.75
27 plus Diesel, per bbl.	.75	.95	.75	.95	.70	.95
30-34 Gas Oil	.75	.95	.75	.95	.70	.95
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.25	.27½	.25	.27½	.25	.27½
22-26 Fuel Oil, per bbl.	.27½	.32½	.27½	.32½	.27½	.35
28-30 Fuel Oil, per bbl. (zero)	.45	.47½	.42½	.47½	.42½	.47½
32-36 Gas Oil (industrial)	.01	.01¼	.01	.01¼	.01⅛	.01⅜
32-36 Gas Oil (zero)	.01⅜	.01½	.01¼	.01⅜	.01⅜	.01½
38-40 Straw Distillate	.01⅜	.01⅝	.01⅜	.01½	.01½	.01¾

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content.

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	Sept. 22		Sept. 15		Sept. 8	
100 vis., 2 color, 20-25 cold test	.04½	.04¾	.04	.04½	.04	.04½
100 vis., 3 color, 20-25 cold test	.04	.04½	.03¾	.04	.03¾	.04
150 vis., 3 color, 20-25 cold test	.06¾	.07½	.06½	.06¾	.06½	.06¾
150 vis., 4 color, 20-25 cold test	.06½	.06½	.05¾	.06	.05¾	.06
180 vis., 3 color, 23-28 cold test	.08¼	.08¾	.07¾	.08¼	.07¾	.08¼
180 vis., 4 color, 23-28 cold test	.07¾	.08¼	.07¼	.07¾	.07¼	.07¾
180 vis., 5 color, 23-28 cold test	.07¼	.07½	.07	.07¼	.07	.07¼
200 vis., 3 color, 23-28 cold test	.09½	.10	.08½	.09	.08½	.09
200 vis., 4 color, 23-28 cold test	.09	.09½	.08¼	.08¾	.08¼	.08¾
200 vis., 5 color, 23-28 cold test	.08¼	.08½	.07¾	.08	.07¾	.08
240 vis., 3 color, 25-30 cold test	.11	.11¼	.10¼	.10¾	.10¼	.10¾
240 vis., 4 color, 25-30 cold test	.10¼	.10¾	.09½	.10	.09½	.10
240 vis., 5 color, 25-30 cold test	.09¾	.10	.09	.09½	.09	.09½
280 vis., 3 color, 25-30 cold test	.12½	.13	.11¾	.12½	.11¾	.12½
280 vis., 4 color, 25-30 cold test	.11½	.12	.10¾	.11¼	.10¾	.11¼
280 vis., 5 color, 25-30 cold test	.10¾	.11	.10¼	.10½	.10¼	.10½
Cylinder Stocks:						
600, steam refined, light green	.04½	.06	.04½	.06	.04	.06
600, steam refined, dark green	.04	.05	.04	.05	.03½	.04½
190-200 vis., D color, Bright Stocks	.21	.22	.21	.22	.19	
150-160 vis., D color, Bright Stocks 0-10 c.t.	.19½	.20	.19½	.20	.17	
150-160 vis., D color, Bright Stocks 10-25 c.t.	.19½		.19½		.16½	
150-160 vis., D color, Bright Stocks 25-40 c.t.	.19		.19		.16	.16½
150-160 vis., E color, Bright Stocks	.18½	.19	.18½	.19	.15½	.16
Waxes:						
124-126 White Crude Scale Wax	.01⅝	.01⅞	.01⅝	.01⅞	.01⅝	.01⅞

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½		.05½		.05½	
34 Sundebloom	.05	.05½	.05	.05½	.05	.05½
36 Miners' Neutral	.05½		.05½		.05½	
150, 3 color	.17	.17½	.17	.17½	.16½	.17
180, 3 color	.18½	.19	.18½	.19	.17½	.18
200, 3 color	.21	.21½	.21	.21½	.20½	.21
220, 3 color	.22	.26½	.22	.26½	.22	.26½
600, steam refined	.14	.14½	.14	.14½	.13½	.14½
650, steam refined	.17½	.18	.17½	.18	.17	.18
600, Pennsylvania Flash	.18½	.19	.18½	.19	.18½	.19
600, E filtered	.18		.18		.18	
600, D filtered, Oil City	.22½	.23½	.22½	.23½	.22	.23½
Pennsylvania Bright Stocks below 35 c.t.	.29		.29		.29	
Pennsylvania Bright Stocks above 35 c.t.	.28½	.29	.28½	.29	.28½	.29
*122-124 White Crude Scale Wax	.019	.02	.019	.02	.019	.02
*124-126 White Crude Scale Wax	.019		.019		.019	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.05½	.05¾	.05½	.05¾	.05½	.05¾
200 vis., 3 color, pale oil	.07½	.07⅝	.07½	.07⅝	.07½	.07⅝
300 vis., 3 color, pale oil	.08¾	.08⅞	.08¾	.08⅞	.08¾	.08⅞
500 vis., 3½ color, pale oil	.09⅞	.10⅛	.09⅞	.10⅛	.09⅞	.10⅛
750 vis., 3½ color, pale oil	.11⅛	.11⅜	.11⅛	.11⅜	.11⅛	.11⅜
1,200 vis., 3½ color, pale oil	.13⅞	.14⅛	.13⅞	.14⅛	.13⅞	.14⅛
2,000 vis., 4 color, pale oil	.14⅞	.15⅛	.14⅞	.15⅛	.14⅞	.15⅛
200 vis., 5-6 color, red oil	.06¾	.06⅞	.06¾	.06⅞	.06¾	.06⅞
300 vis., 5-6 color, red oil	.07⅞	.08⅛	.07⅞	.08⅛	.07⅞	.08⅛
500 vis., 5-6 color, red oil	.09½	.09⅝	.09½	.09⅝	.09½	.09⅝

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

1,200 vis., 5-6 color, red oil	.12⅞	.13⅜	.12⅞	.13⅜	.12⅞	.13⅜
2,000 vis., 6 plus color	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
CALIFORNIA—						
130 vis., 2½-3 color	.08	.08½	.08	.08½	.08	.08½
200 vis., 2½-3 color	.09	.10	.09	.10	.09	.10
300 vis., 3-3½ color	.10	.11	.10	.11	.10	.11
350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
450 vis., 3½-4 color	.12	.12½	.12	.12½	.12	.12½
550 vis., 3½-4 color	.12½	.13¼	.12½	.13¼	.12½	.13¼
Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.09½	.10	.09½	.10
300 vis., 5-6 color	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
500 vis., 4½-5 color	.12¼	.13	.12¼	.13	.12¼	.13
600 vis., 6½ plus color	.13	.13½	.13	.13½	.13	.13½
700 vis., 6½ plus color	.14	.15	.14	.15	.14	.15

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) EXPORT PRICES

	Sept. 22		Sept. 15		Sept. 8	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.06	.06¼	.06	.06¼	.06	.06½
Kerosene, water white, 41-43	.05		.05		.04¾	
*Fuel Oil, Bunker "C," 41-43	.70		.70		.70	
†Fuel Oil, Diesel, 28-30, per bbl.	1.40		1.40		1.40	
Gas Oil, 28 gravity plus	.04		.04		.04	
25 pale Paraffin Oil, tank car	.10¾		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.03½		.03½		.04	
Refined Wax:						
120-122 a.m.p., per lb.	.02⅞		.03		.03	
125-127 a.m.p., per lb.	.03		.03½		.03½	
130-132 a.m.p., per lb.	.03½		.03⅝		.03⅝	
133-135 a.m.p., per lb.	.04		.04⅛		.04⅛	
135-137 a.m.p., per lb.	.04½		.04⅝		.04⅝	
Petrolatum in barrels in carload lots, per pound:						
Dark Green	.01¾		.01¾		.01¾	
Amber	.02¾		.02¾		.02¾	
Extra Amber	.03		.03		.03	
Cream	.05¾		.05¾		.05¾	
Lily White	.06½		.06½		.06½	
Snow White	.07¼		.07¼		.07¼	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) REFINERY PRICES

	Sept. 22		Sept. 15		Sept. 8	
600, steam refined cylinder stocks, in bbl.	.20	.20½	.18½	.19	.18½	.19
635, steam refined	.22	.23	.20½	.21	.20½	.21
650, steam refined	.23	.24	.21	.22	.21	.22
600, Pennsylvania Flash	.25	.26	.23	.24	.23	.24
630, Pennsylvania Flash	.29½	.30	.28½	.29	.28½	.29
600, Warren E	.24½	.25	.23	.24	.23	.24
600, Oil City E	.23½	.24	.22	.23	.22	.23
Light 140-150 Bright Stocks	.33	.34	.31	.32	.31	.32
Dark 140-150 Bright Stocks	.32	.33	.30	.31	.30	.31

LOS ANGELES EXPORT PRICES

	Sept. 22		Sept. 15		Sept. 8	
Kerosene, water white	.04	.04¾	.04	.04¾	.04	.04¾
U. S. Motor gasoline, 53-55, 437 e.p.	.04	.04½	.04	.04½	.03¾	.04½
58-60, 400 endpoint gasoline	.04½	.05	.04½	.05	.04	.04¾

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas† ..... $ .68
Corsicana heavy (Aug. 22, 1931)† ..... .34
Other fields ..... See gravity table

†Posted by Panola Pipe Line Co. Aug. 17, 1931; by Magnolia Petroleum Co., Aug. 22, 1931; Tidal Refining Co., Sept. 2; Gulf Pipe Line Co., Sept. 3; Sinclair Refining Co., Sept. 3.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties. See gravity table

WEST TEXAS

Iatan and Westbrook. . Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties* ..... $ .35
Lea County, N. Mex.* ..... .35
Toborg, Pecos County, Aug. 25, 1931†. . .25

*The Texas Company, August 22, 1931. All other companies, August 22. †Shell Petroleum Corp.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective September 12, 1931)

Penna Grade Oil in National Transit Lines (Pennsylvania) $1.95
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.80
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia) 1.70
Penna Grade Oil in Buckeye Pipe Line Lines (Sept. 4, 1931) 1.60
Corning Grade Oil in Buckeye Pipe Line Co.'s Line (Sept. 16, 1931) ..... .80
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931).... .60
Wayne district Oil in Cumberland Pipe Lines (April 23, 1931) 1.17

Tide Water Pipe Co.
(Effective September 12, 1931)

Bradford, Pa., crude $2.35
Allegany, N. Y., crude 2.35

Pure Oil Co.
(Effective September 12, 1931)

Cabin Creek, W. Va. $1.70
Bradford Hollow, W. Va. 1.70

GULF COAST

Grade A and Grade B classifications discontinued by leading buyers ..... See gravity table
Jennings, La. (Aug. 22, 1931)* ..... $ .50
Lockport, La. (Aug. 27, 1931)† ..... See Gulf Coast gravity table
Refugio light ..... See gravity table
Refugio heavy (Aug. 22, 1931)‡ ..... .60
Markham (Aug. 22, 1931)§ ..... .52
See Gulf Coast gravity table
High Island (Aug. 22, 1931)¶ ..... .50

*Gulf Refining Co. †Vacuum Oil Co. ‡Humble Oil & Refining Co. §The Texas Company. Other companies July 24. ¶Gulf Pipe Line Co.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark. (all grades) See note below
Urbana, Ark. ..... See note below
Bellevue, La. (June 3, 1931) ..... $ .25
Urania, La. (Aug. 24, 1931) ..... .40
Calion, Ark. (Aug. 22, 1931) ..... .52
East El Dorado, Ark. (Aug. 22, 1931).. .45
Stephens, Ark., below 29° (August 24, 1931) ..... .41
Stephens, Ark., 29° and above (August 24, 1931) ..... .44
Other fields ..... (See gravity table)

Note—Smackover, all grades, The Texas Company, August 22, 1931, 52 cents; Gulf Refining Co., August 22, 45 cents; Magnolia Petroleum Co. and Standard Oil of Louisiana, August 24, 45 cents. Urbana posting discontinued by Standard Oil Co. of Louisiana on August 24, 1931. Bellevue posted by Magnolia Petroleum Co.; Urania by Louisiana Oil Refining Co.; Calion by Gulf Refining Co.; East El Dorado by Gulf Refining Co. and Magnolia Petroleum Co.;

(Continued on Page 116)

CRUDE OIL GRAVITY TABLE

	Okla., Kans., East Central and North Central Texas (1)	North Louisiana and Arkansas (2)	Gray County, Texas (3)	Carson and Hutchinson Counties, Tex. (4)	Salt Creek, Wyo. (5)	Gulf Coast (6)
Below 25 degrees	...	...	...	...	...	.55
25-25.9 degrees	...	...	...	...	...	.56
26-26.9 degrees	...	...	...	...	...	.57
27-27.9 degrees	...	...	...	...	...	.58
28-28.9 degrees	...	...	...	...	...	.59
Below 29 degrees	.46	.46	...	...	.46	...
29-29.9 degrees	.48	.48	...	...	.48	.60
30-30.9 degrees	.50	.50	...	...	.50	.61
31-31.9 degrees	.52	.52	...	...	.52	.62
32-32.9 degrees	.54	.54	...	...	.54	.63
33-33.9 degrees	.56	.56	...	...	.56	.64
34-34.9 degrees	.58	.58	.46	.41	.58	.65
35-35.9 degrees	.60	.60	.48	.43	.60	.66
36-36.9 degrees	.62	.62	.50	.45	.62	.67
37-37.9 degrees	.64	.64	.52	.47	.64	.68
38-38.9 degrees	.66	.66	.54	.49	.64	.69
39-3.99 degrees	.68	.68	.56	.51	.64	.70
40 degrees and above	.70	.70	.58	.53	.64	.71

Note—Magnolia Petroleum Co. does not pay on a gravity basis. The Magnolia company posted the following notices on August 22 and August 24 as indicated:

"Effective August 22, 1931, and until further notice our prices on crude oil will be as follows per barrel at the wells: Central Texas, which includes only Mexia, Wortham, Corsicana light, Panola County, and Lytton Springs, 64 cents; Panhandle district of Texas, Gray County, 58 cents; Carson and Hutchinson Counties, 51 cents; West Texas, being Crane, Upton, Howard, Glasscock and Mitchell Counties, 35 cents; Mirando, 60 cents; Darst Creek, 52 cents; Luling, 34 cents; Corsicana heavy, 34 cents. Oklahoma, including Cushing, Yale, Oklahoma City, Morrison, Wewoka and Seminole, 68 cents; Cement, Duncan, and Walters, 60 cents; Healdton, 37 cents; Hewitt and Graham, 52 cents. North and Central Texas, including only Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden, 68 cents; East Texas, 68 cents.

"Effective August 24, 1931, and until further notice our prices on crude oil in the states of Louisiana and Arkansas will be as follows per barrel at the wells: Louisiana, Bull Bayou, 68 cents; Haynesville, 50 cents; Pine Island, 58 cents; Cotton Valley, 46 cents. Arkansas, El Dorado and Rainbow, 48 cents; El Dorado East Field and Smackover district, 45 cents."

Column 1—The Texas Company (excepting Kansas), August 22; Gypsy Oil Co., Gulf Pipe Line, Carter Oil Co., Humble Oil & Refining Co., Stanolind Crude Oil Purchasing Co., Sinclair Refining Co., Continental Oil Co., Skelly Oil Co. (Kansas), Empire Pipe Line Co., Wilcox Oil & Gas Co., Tidal Refining Co., Pure Oil Co., Vickers Petroleum Co., Derby Oil Co., all on August 22. Stanolind Oil Co., September 17, 1931.

Column 2—The Texas Company, August 22; Gulf Refining Co., August 22; Standard Oil Co. of Louisiana, August 24; Louisiana Oil Refining Co., August 24.

Column 3—The Texas Company, August 22; Gulf Pipe Line Co., August 22; Humble Oil & Refining Co., August 22; Wilcox Oil & Gas Co., September 17, 1931; Philtex Oil Co., September 17, 1931.

Column 4—The Texas Company, August 22; Gulf Pipe Line Co., August 22; Humble Oil & Refining Co., August 22; Philtex Oil Co., September 17, 1931.

Column 5—The Mid West Refining Co., August 22.

Column 6—The Texas Company, August 22; Humble Oil & Refining Co. and Gulf Pipe Line Co. on August 22 but their price schedule stops at 35 and above at 66 cents. Sun Oil Co. and Sinclair Refining Co. met Humble-Gulf prices effective August 22, but Sun posted a price of 55 cents for Grade A oil, it being the only company that maintains A and B grade classifications. The Vacuum Oil Co. applied the schedule to Lockport on August 27.

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) for allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a. m.

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	$.65	$.65	...	$.55	$.55
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
19-19.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
20-20.9	.65	.65	.65	.66	.66	.65	.65	.65	...	.55	.55
21-21.9	.65	.65	.65	.68	.67	.65	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
23-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$.65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.66
27-27.9	.75	.75	.76	...	.78	...	...	.73	.68	.68	.67
28-28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	...	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.72
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:

Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).

Coalinga—55 cents for all grades from 14° to 24-24.9°; 57 cents for 25 gravity.

Newhall, McKittrick and Kern River—55 cents for all grades (14° to 19.9°).

Montebello—65 cents for all grades (14° to 25.9°).

Whittier and LaHabra—65 cents for all grades (14° to 22.9°).

Elwood Terrace, f.o.b. ship—33° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above, 87 cents.

Playa Del Rey—Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents; 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

ASSOCIATED OIL CO. PRICES

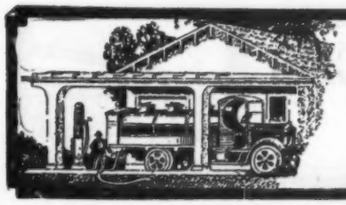
Associated Oil Co. prices, effective June 20, are as follows:

Ventura Avenue, 22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills, 30 gravity and above 66 cents.

Potrero, 24 gravity, 69 cents, with 2 cents added for each degree upward to 34 gravity, which is 69 cents.

(Continued on Page 125)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Sept. 22

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Chicago	14.0	14.0	3.0	9.0
Decatur, Ill.	14.4	14.4	3.0	9.0
E. St. Louis	13.7	13.7	3.0	8.2
Joliet	14.4	14.4	3.0	9.0
Peoria	14.4	14.4	3.0	9.0
Quincy	14.2	14.2	3.0	8.8
Davenport, Ia.	14.5	13.5	3.0	9.3
Des Moines	14.5	13.4	3.0	8.0
Keokuk	14.6	14.6	3.0	6.3
Sioux City	14.1	14.1	3.0	8.9
Duluth, Minn.	15.5	15.5	3.0	9.9
Mankato	15.1	15.1	3.0	8.0
Minneapolis	15.2	13.4	3.0	9.9
La Crosse, Wis.	16.2	16.2	4.0	10.0
Milwaukee	15.1	15.1	4.0	8.9
Madison	15.3	15.3	4.0	9.1
Detroit, Mich.	14.8	14.8	3.0	10.7
Grand Rapids	14.7	14.7	3.0	10.6
Saginaw	14.9	14.9	3.0	10.8
Evansville, Ind.	15.1	15.1	4.0	9.9
Indianapolis	15.3	15.3	4.0	9.0
South Bend	15.4	15.4	4.0	10.2
Fargo, N. D.	16.9	16.9	3.0	11.9
Huron, S. D.	16.3	16.3	4.0	10.7
Sioux Falls	15.8	15.8	4.0	10.4
K. C., Mo.	13.9	13.9	3.0	7.6
Springfield*	13.9	13.9	3.0	8.5
St. Louis*	12.9	12.9	2.5	8.3
St. Joseph	13.5	13.5	3.0	7.5
Wichita, Kans.	12.8	13.8	3.0	7.8
Bartlesville, Ok.	13.0	16.0	5.0	7.0

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 2 cents or more below the price on the regular grade.

Effective April 15—Discounts on Q.D.A. on 1,000 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 2 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Dallas, Tex.	13.0	14.0	4.0	8.0
Fort Worth	13.0	14.0	4.0	8.0
Houston	13.0	14.0	4.0	11.0
San Antonio	12.0	14.0	4.0	10.0
El Paso	14.0	16.0	4.0	12.0
Texarkana	12.0	14.0	4.0	11.0
Muskogee, Ok.	12.0	14.0	5.0	8.0
Okla. City	12.0	16.0	5.0	7.0
Tulsa	13.0	15.0	5.0	8.0
Ft. Smith, Ark.	16.5	17.5	5.0	11.0
Little Rock	17.5	18.5	6.0	11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Omaha	15.25	16.25	4.0	9.25
McCook	16.00	17.75	4.0	10.75
Norfolk	15.75	16.75	4.0	9.75
N. Platte	16.75	17.75	4.0	10.50
Scottsbluff	16.00	16.00	4.0	10.25

Note—Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal service station price; Nebraska Blue (third grade) 1 cent off normal service station price.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Denver, Colo.	16.0	19.0	4.0	12.5
Pueblo	16.0	19.0	4.0	13.0
Grand Jctn.	18.0	21.0	4.0	14.5
Casper, Wyo.	15.0	18.0	4.0	10.0
Cheyenne	16.5	19.5	4.0	11.5
Butte, Mont.	17.0	20.0	5.0	16.0
Billings	20.0	23.0	5.0	14.5
Great Falls	21.0	23.0	5.0	16.0
Helena	21.0	24.0	5.0	16.0
Salt Lake, Utah	18.5	21.5	4.0	16.0
Albu'que, N.M.*	18.0	21.0	6.0	14.0
Boise, Idaho	21.5	24.5	5.0	18.0
Twin Falls†	20.0	20.0	5.0	18.0

*One-cent excise city tax. †Three-cent discount off tank wagon to dealers.

PACIFIC COAST TERRITORY

	Gasoline			Kero.
	Wh'le'e price	Retail* price	Incl'ds tax	tank wagon
Fresno	19.5	16.5	3.0	17.0
San Francisco	19.5	16.5	3.0	15.5
Los Angeles	19.0	16.0	3.0	15.5
Reno, Nev.	23.5	20.5	4.0	19.0
Portland, Ore.	21.0	18.0	4.0	16.5
Seattle, Wash.	22.0	19.0	5.0	16.5
Tacoma	22.0	19.0	5.0	16.5
Spokane	25.5	22.5	5.0	20.5
Phoenix, Ariz.	15.5	17.5	5.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 3 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Pittsburgh, Pa.	*10.0	*11.0	...	11.0
Philadelphia	*10.0	*11.0	...	11.0
Scranton	*10.0	*11.0	...	11.0
Allentown	*10.0	*11.0	...	11.0
Altoona	*10.0	*11.0	...	11.0
Erie	*10.0	*11.0	...	11.0
Dover, Del.	13.0	14.0	3.0	11.0
Wilmington	13.0	14.0	3.0	11.0
Springf'd, Mass.	14.5	15.5	3.0	10.0
Worcester	14.3	15.3	3.0	10.0
Boston	13.5	14.5	3.0	10.0
Providence, R.I.	12.1	13.1	2.0	10.0
Hartford, Conn.	14.5	15.5	2.0	10.0
New Haven	14.6	15.6	2.0	10.0

*Does not include tax of 3 cents in Pennsylvania. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The above prices are subject to discounts to the dealers and to commercial accounts under contract for one year in accordance with Code of Ethics.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
N. Orleans, La.	14.5	14.5	6.0	12.0
Baton Rouge	15.0	16.0	5.0	12.0
Alexandria†	17.0	18.0	6.0	12.0
Lafayette*	17.0	18.0	6.0	12.0
Lake Charles*	17.0	18.0	6.0	12.0
Shreveport	16.5	17.5	5.0	12.0
Knoxville, Tenn.	19.5	20.5	6.0	13.5
Memphis	17.5	18.5	6.0	10.6
Chattanooga	19.0	20.0	6.0	12.0
Nashville	18.5	19.5	6.0	12.5
Bristol	18.0	19.0	6.0	14.0
Lt. Rock, Ark.	17.5	18.5	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atl'tic City, N.J.	14.7	15.7	3.0	11.5
Newark	13.7	14.7	3.0	10.5
Annapolis, Md.	15.2	16.2	4.0	11.0
Baltimore	14.4	15.4	4.0	9.5
Cumberland	16.2	17.2	4.0	12.0
Wash'ton, D. C.	12.9	13.9	3.0	10.7
Danville, Va.	17.0	18.0	5.0	11.8
Norfolk	15.5	16.5	5.0	10.0
Petersburg	16.5	17.5	5.0	11.3
Richmond	15.9	16.9	5.0	10.7
Roanoke	17.2	18.2	5.0	13.0
Charles'n, W.Va.	15.7	16.7	4.0	11.5
Keyser	16.3	17.3	4.0	12.1
Parkersburg	14.4	15.4	4.0	10.2
Wheeling	15.6	16.6	4.0	11.4
Charlotte, N. C.	17.5	17.5	6.8	12.5
Hickory	18.8	19.8	6.0	12.6
Mount Airy	18.7	19.7	6.0	12.6
Raleigh	18.4	19.4	6.0	12.2
Salisbury	18.7	19.7	6.0	12.5
Charleston, S.C.	16.5	17.5	6.0	10.3
Columbia	18.4	19.4	6.0	12.2
Spartanburg	18.7	19.7	6.0	12.5

Two cents per gallon discount off retail tank wagon price of gasoline to dealers except Washington, D. C., and State of Maryland and New Jersey, where discount is 3 cents.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Albany, N. Y.	16.6	17.6	2.0	15.6
New York*	15.3	15.3	2.0	14.3
Buffalo	15.8	15.8	2.0	14.8
Rochester	16.0	16.0	2.0	14.0
Syracuse	16.8	16.8	2.0	14.8
Boston, Mass.	16.5	16.5	3.0	12.5
Augusta, Me.	18.8	18.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Ohio points	15.0	16.0	4.0	*12.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13 cents.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atlanta, Ga.	19.0	19.0	6.0	12.5
Augusta	19.0	20.0	6.0	14.0
Macon	19.0	19.0	6.0	12.0
Savannah	17.0	17.0	6.0	12.0
Birm,ham, Ala.	17.0	17.0	6.0	13.0
Mobile	21.5	21.5	5.0	10.0
Montgomery	19.0	19.0	5.0	13.5
Clarks'le, Miss.	18.0	20.0	5.0	13.5
Jackson	17.0	17.0	5.0	11.5
Natchez	18.0	20.0	5.0	13.5
Gulfport	16.0	16.0	5.0	13.5
Vicksburg	17.0	17.0	5.0	11.5
Jack'ville, Fla.	15.0	15.0	7.0	12.0
Miami	20.0	21.0	7.0	13.0
Pensacola	20.0	21.0	7.0	13.0
Tampa	16.0	16.0	7.0	12.0
Lexington, Ky.	18.0	19.0	5.0	13.0
Covington	17.0	19.0	5.0	11.0
Louisville	17.0	18.0	5.0	10.0
Ashland	17.0	19.0	5.0	13.0
Paducah	18.0	18.0	5.0	11.0
Bowling Green	19.0	21.0	5.0	14.5
Corbin	18.0	19.0	5.0	15.0

A third grade "Kyso Green," is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery and Birmingham state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents. To Mobile state tax add 1-cent city tax and 2½ cents county tax.

Effective April 2 price to dealers 2 cents under posted tank wagon price.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	10.7	6.0
V.M.P. naphtha	12.7	7.5
Cleaners' naphtha	14.2	9.0
Stanisol	14.2	9.0

Tank wagon prices f.o.b. Chicago and Whiting, effective July 3.

STANOLIND FURNACE OIL IN CHICAGO

Effective July 1, prices f.o.b. Chicago, tank wagon prices: 1 to 99 gallons, 8 cents; 100 gallons or more 6 cents.

Stanolex Fuel

Effective May 9, f.o.b. Chicago, tank wagon prices: 1 to 199 gallons, 7 cents; 200 gallons or more, 5 cents. Sinclair met this by bringing down the price of its No. 3.

Fuel Oils

Chicago tank wagon prices (in lots of 400 gallons and over): 28-40 straw distillate, 6 cents; 32-36 gas oil (light zero), 5.5 cents; 32-36 gas oil (industrial), 5.25 cents; 28-30 zero fuel oil, 5 cents; 24-26 fuel oil, 4.25 cents; 18-22 fuel oil, 3.75 cents.

TANK WAGON CHANGES

Standard Oil Co. of Indiana reduced the gasoline station price in Minneapolis, Minn., to 13.4 cents September 15.

Continental Oil Co. reduced the gasoline tank wagon and station prices to 20 cents each in Twin Falls, Ida., and

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CRUDE OIL PRICE CHANGES

The Joseph Seep Purchasing Agency advanced the price of Corning, Ohio, crude 5 cents per barrel, effective September 16.

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CRUDE OIL PRICES

(Continued from Page 115)

Stephens, Ark., by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Aug. 22, 1931)*	$ .52
Luling (Aug. 22, 1931)†	.34
Mirando (Aug. 22, 1931)*	.66
Pettus (Aug. 22, 1931)*	.70
Salt Flat (Aug. 22, 1931)*	.52
Thrall‖	
Lytton Springs (Lockhart)	See gravity table
Dobrowolski‖	
	Same as Mid-Continent gravity scale up to and including 38-38.9°.
Somerset‖	
	Same as Mid-Continent gravity scale up to and including 38-38.9°.

*Texas, Humble and Gulf all posted on August 22. †Magnolia Petroleum Co. ‖Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products. ‖Pioneer Oil & Refining Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles, light (Aug. 24, 1931)	$ .75
Iles, heavy (Aug. 24, 1931)	.53
Fort Collins (Aug. 24, 1931)	.61
Florence (Aug. 24, 1931)	.50
Wellington (Aug. 24, 1931)	.51
Dutton Creek (Aug. 24, 1931)	.60
Rock Creek, Wyo. (Aug. 24, 1931)	.70
Frannie, light (Aug. 24, 1931)	.53
Frannie, heavy (Aug. 24, 1931)	.42
Salt Creek	Mid-Continent gravity table
Big Muddy (Aug. 24, 1931)	.68
Grass Creek (Aug. 24, 1931)	.90
Elk Basin (Aug. 24, 1931)	.90
Lance Creek (Aug. 24, 1931)	1.05
Poison Spider (Mar. 5, 1931)	.70
Notches (Mar. 14, 1927)	.65
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Apr. 15, 1931)	.98
Lost Soldier (Aug. 25, 1931)	.54
Hamilton Dome (Mar. 14, 1927)	.85
Greybull (Aug. 24, 1931)	.90
Torchlight (Aug. 24, 1931)	.90
Cat Creek (Aug. 24, 1931)	.90
Ponderay (Aug. 24, 1931)	.80
Sunburst, Mont. (Aug. 24, 1931)	.90
Hogback, N. Mex. (Aug. 24, 1931)	.80
Lea County, N. Mex. (Aug. 24, 1931)	.35
Border, Mont.	1.55
Red Coulee, Alberta	1.55
Dry Creek, Mont. (Aug. 24, 1931)	1.00
Maljamar (Aug. 22, 1931)	1.00
Artesia-Jackson (Aug. 22, 1931)	.35

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin, Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Ohio Oil Co. ceased posting Artesia on March 5, 1931. Lea County posted by Humble Oil & Refining Co. Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa by the Continental Oil Co. Osage posted by Arro Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effecive August 24, 1931)

Lima	$ .90
Wooster	1.00
Illinois	.80
Indiana	.50
Princeton	.80
Plymouth	Shut in
Western Kentucky	.75
Midland, Mich.*	.73
Dundee, Mich.†	
	Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale
Upper and Lower Traverse Sands, Mich.†	....Same as Mid-Continent gravity scale
Somerset, Ky. (Aug. 22, 1931)	.80
Hart County, Ky. (Sept. 16, 1931)‖	.60

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‖Posted by Stoll Refining Co. Somerset, Ky., crude purchased by Ashland Refining, Ashland, Ky., and delivered through Cumberland Pipe Line.

MEXICO

Panuco*	$ .44

*F.o.b. ship, based on August transactions and exclusive of taxes and bar dues.

CANADA

Ontario (Aug. 24, 1931):	
Petrolia*	$1.80
Oil Springs*	1.67
Alberta (Aug. 24, 1931):	
Turner Valley:†	
Crude oil 45-49.9	2.08
Crude oil 50 and above	2.65
Crude naphtha	3.13
Discolored naphtha	2.68

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Of Interest to Sales Departments

Richfield Selling Third-Grade Motor Fuel in California

LOS ANGELES, Calif., Sept. 19.—As a result of consistent distress selling, gasoline of independent refiners is retailing in Los Angeles territory at from 1 to 2 cents per gallon below the posted tank wagon price of major refiners. Retail prices late this week ranged all the way from 9 cents to 16 cents per gallon, tax paid. The wide spread existing between retail prices prompted the Richfield Oil Co. to introduce a third-grade gasoline, which it terms Blue Flash. This motor fuel is being introduced in all Richfield stations and in resellers' pumps throughout southern California. It is retailed at 10½ cents per gallon, as compared with 16 cents for water white gasoline and 19 cents for Richfield Ethyl.

Other major marketers, while not in entire sympathy with the Richfield's new policy, are nevertheless watching the outcome with keen interest. Richfield stepped out early this week and signed up 300 pumps for distribution of its new Blue Flash gasoline. It is designed primarily, as in other parts of the country, to meet cut-rate competition. Several well-informed operators frankly admit that this third-grade gasoline will cause a lessened demand for the first two grades and may ultimately precipitate another general price war. This may be averted, however, if other major marketers follow a similar procedure. It is quite obvious that other major companies will be obliged to either put in a

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ATLANTIC HAS NEW ALL-WELDED TANKER

NEW YORK, Sept. 18.—Sun Shipbuilding & Dry Dock Co., Chester, Pa., has just launched the motor tanker White Flash, built for the Atlantic Refining Co.

A notable feature of the new tanker is that she is of all-welded construction, thus entirely eliminating the use of rivets. This form of construction not only means a much stronger ship from the point of view of seaworthiness, but there can be no question of corrosion around rivets, one of the chief worries of the tanker operator.

All-welded construction materially simplifies scaling and cleaning and the White Flash is expected to set a standard by which future tankers will be gauged.

The new vessel is 201 feet long, and is expected to go into service very shortly.

INCREASES FUEL PURCHASES

The Frisco railroad has increased its purchases of fuel oil through the addition of oil burner equipment. Fifteen engines in the central division have been changed from coal to oil burners and 16 new oil burner engines have been added. Under normal conditions, the Frisco railroad uses 2,000 cars of fuel oil monthly. The oil is purchased from refineries located at Tulsa, Oklahoma City, Muskogee, Okmulgee, Enid, Blackwell, Sapulpa and Bristow.

SIGNAL BUYS CENTRAL

The Signal Oil & Gas Co., which entered the refining and marketing ends of the oil business in California last year, has purchased a controlling interest in Central State Oil Co. with headquarters at Stockton, Calif. The Central company has a number of stations in that territory.

CONTINENTAL'S LONG AIR TRIP REFLECTED IN INCREASED SALES

The sales solicitation as well as the unusual amount of public interest aroused by the recently completed air tour of marketing and advertising representatives of the Continental Oil Co. has already resulted in a noticeable increase in sales volume of refinery products according to D. J. Moran, president of the company. The air tour which was the longest ever made by any company in a sales promotion campaign, lasted 78 days, covering almost 12,000 miles in 30 states and two Canadian provinces.

The trip was made in two planes, one a tri-motored Ford plane and the other a smaller Curtiss-Robin plane. Five marketing representatives of the company from the Ponca City, Okla., general offices of the company used the Ford plane while one member piloted the small plane. Division marketing representatives of the company accompanied the party at several points.

Attracts Attention

The "sky trip" attracted wide attention in all parts of the country due in part to the fact that the past year has been a period in which many companies in all lines of business have materially curtailed their advertising activities due to the depression. The long airplane trip was in line with the Continental policy of active sales campaigns to keep and enlarge public interest in the company's products with the aid of advertising programs.

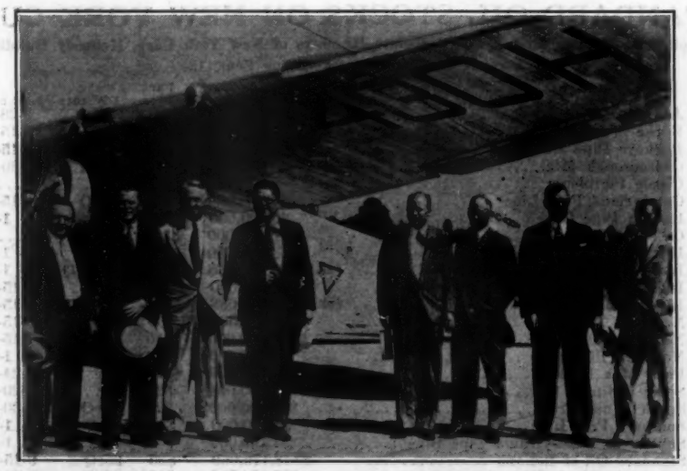
In addition to their direct sales message to company customers and prospective customers, the Continental executives had a prosperity message, an optimistic prediction of better times ahead, which left public enthusiasm in their wake and strengthened good will toward their organization to an astonishing degree. Prominent men in most of the cities and hamlets which members of the tour visited welcomed them wholeheartedly. Newspapers from coast to coast devoted generous portions of their reading space to these "sky-pilots" for prosperity who had sailed down to visit them and talk to them about their problems. Thirty-eight radio stations gave portions of their broadcasting time in order that the Conoco prosperity message might be spread.

Trip Economical

Figuring the advantages of airplane transportation on a comparative cost and efficiency basis, it is estimated that a saving of at least 50 per cent was effected during the trip. If another means of transportation had been chosen, it would have taken more than twice as long to cover the same amount of territory. This in turn would have meant the expenditure of twice as much in salaries chargeable to the trip, as well as doubling the food, lodging and incidental expenses. Depreciation on the planes would have continued regardless of whether or not the trip was made. Pilot's salaries would also have been the same. Considering, too, the conveniences afforded, the value of actual sales made, and publicity and general good will gained, the tour paid its own way with a substantial margin to spare.

Unhampered by the necessity of adhering to train or bus schedules, and aided by the speed and reliability of their air transports, tour members traveled hundreds of miles each day regularly and yet spent the greatest portion of their time on the ground engaged in their business activities. On one day while the group was covering the northwestern portion of the United States, its members traveled 900 air miles, but also spent 6½ hours at work on the ground! Sales solicitation for business from leaders in important industries and company dealers and jobbers constituted a major portion of each day's activities. Four o'clock a.m. was the commonly accepted time to be up and about. Many a day's business did not come to a close until long after the dinner hour.

Those who made the trip were: Harry J. Kennedy, general sales manager; O. B. Lloyd and P. J. Ryan, assistant general sales managers; Wesley I. Nunn, advertising manager; Frank Moore, special sales representative; O. M. Bounds, manager of the aviation sales division; Tip Schier, pilot; and G. McJunkin, mechanic. All traveled in the Ford plane, excepting Mr. Bounds, who piloted the Curtiss-Robin.



The Continental Oil Co.'s "Prosperity Tour" party upon arrival at Seattle, Wash. Left to right, are Harry J. Kennedy, general sales manager; O. B. Lloyd and P. J. Ryan, assistant general sales managers; Wesley I. Nunn, advertising manager; Frank Moore, special sales representative; T. H. Menke and E. F. Battson, assistant manager and manager, respectively, of Continental's Butte, Mont., sales division; and Tip Schier, pilot of the tri-motor.

Resumption of Tanker Shipments of Gasoline From California Seen

LOS ANGELES, Calif., Sept. 19.—The old saying that it's an ill wind that blows no one any good seems especially to fit the condition confronting California refiners with respect to projected intercoastal shipments of gasoline for domestic consumption. Tanker shipments from California to Atlantic and Gulf Coast ports during the current year to date reflecting overproduction of crude oil from East Texas are more than 30 per cent below aggregate liftings at the same time last year. The declaration of martial law in Texas and Oklahoma together with the probability that some degree of stability will result therefrom apparently opens the way for a resumption of this trade which was so abruptly halted. At any rate, several California refiners already have made commitments and this gasoline should begin moving eastward some time during September.

Contracts involving 450,000 bbls. of California gasoline for September delivery have been consummated during the past week and if there is any improvement in eastern marketing conditions subsequent deliveries may be expected. There is not yet any tangible evidence of this new business and it will probably be another week before the first of several tankers now en route arrives at Los Angeles harbor.

It is rather difficult to determine whether the increase in intercompany

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RUSSIA TO SUPPLY KEROSENE TO CHINA

SHANGHAI, China, Sept. 18.—An oil war appears to be impending in China, with Soviet Russia preparing to enter the field at present controlled by American and British companies.

The Soviet Oil Trust is negotiating with the Kwang Hwa Petroleum Co., the largest Chinese distributor and owning a plant at Shanghai, for the marketing of Russian products. The Russians would begin by supplying 1,500,000 gallons of kerosene a month—kerosene is in great demand in China for domestic purposes—at a price 10 per cent below the market. The scheme thereafter would be extended to gasoline and lubricants.

Small shipments of Soviet oil have been received for a long time in China, but the Oil Trust lacked sufficient steel drums for transporting the product. This would be overcome by the alliance with the Kwang Hwa company.

Russian petroleum supplies are shipped from Batum and other Black Sea ports to Vladivostok in tankers because of the shortage of tank cars on the Transsiberian Railway. Already at Vladivostok, where a huge storage plant has been built, two tankers have arrived with 2,500,000 gallons of oil products for the Chinese market, and regular service is assured if the negotiations are completed.

BILL TO DIVERT TAX MONEY

COLUMBIA, S. C., Sept. 21.—Under the terms of a bill introduced in the State House of Representatives by W. L. Daniel of Greenwood, S. C., money derived from the 6-cents-per-gallon tax on gasoline sold in South Carolina in excess of the amount required to meet obligations already assumed by the highway department and money derived from the sale of automobile license tags would be turned into the general treasury of the state to be used to bring about a reduction in state taxes.

Quotations in Oil Securities Market

Lower Prices and Proration Cause Drop in Deep Rock's Net Before Depreciation. Pan American Declares Dividend of 40 Cents

Decline of $1,777,695 in consolidated net income of Standard Gas & Electric Co. in 12 months ended June 30 as compared with that for year ended December 31, 1930, is caused mainly by the substantial drop in profits before depreciation of Standard's subsidiary, Deep Rock Oil Corp. and the decrease of more than $200,000 in other income. Net income of the utility subsidiaries, however, has held well this year.

Consolidated net income of the system for 12 months ended June 30, 1931, amounted to $17,712,889 after all charges and taxes, equivalent after preferred dividends, to $5.15 a share on the 2,162,607 shares of common stock outstanding against $19,490,584 or $6.04 a share on same number of shares in year ended December 31, 1930.

Lower prices of oil products and proration of oil production in the Mid-Continent Field resulted in a drop of more than $1,000,000 in Deep Rock's net before depreciation, while gross declined more than $2,225,000.

Pan American

Pan American Petroleum & Transport Co., owned by the Standard Oil Co. of Indiana, declared a dividend of 40 cents on the common and common "B" stock, payable October 20 to stockholders of record of September 30. A dividend for the same amount was paid July 20 this year, marking resumption of dividends by the company.

Mexican Petroleum

The Mexican Petroleum Co. preferred dividend regular quarterly of $2 on the 8 per cent preferred is payable October 20 to stockholders of record of September 30.

Herbert L. Pratt Returns

Herbert L. Pratt, chairman of the Socony Vacuum Corp., has returned from Europe. Mr. Pratt has been abroad six weeks.

Pacific Public Service

In response to repeated rumors that the proposed merger of Standard Oil Co. of California with Standard Oil Co. (New Jersey), if completed, would affect the relationship of Standard Oil Co. of California to Pacific Public Service Co., R. W. Hanna, president of Pacific Public Service Co., stated that the stock ownership of Standard Oil Co. of California in Pacific Public Service Co. is one of its assets which would pass to the merged corporation, and that there has been no consideration of disturbing the present status of Standard Oil Co. of California's control of Pacific Public Service Co.

Derby Oil

Report of Derby Oil Co. (controlled by Derby Oil & Refining Corp.) for eight months ended August 31, 1931, shows net profit of $2,811 after interest, depreciation, depletion, nonproductive development expense, lease rentals, etc., equal to 13 cents a share on 20,597 no-par shares of $4 preferred stock.

August net profit was $56,053 after depreciation, depletion, charges, etc.

Standard of Ohio

A special meeting of stockholders of the Standard Oil Co. of Ohio will be held October 2 to vote on an increase in the authorized common stock to 811,112 shares of $25 par value from 766,667 shares. The additional stock will provide for acquisition of Solar Refining Co.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Jan. 28	27.26	May 27	18.35
Feb. 4	27.26	June 3	18.00
Feb. 11	27.76	June 10	19.62
Feb. 18	28.53	June 17	19.33
Feb. 25	29.33	June 24	22.33
Mar. 4	27.67	July 1	22.32
Mar. 11	26.53	July 8	21.34
Mar. 18	26.75	July 15	19.79
Mar. 25	26.85	July 22	21.33
Apr. 1	24.80	July 29	20.68
Apr. 8	25.52	Aug. 5	20.80
Apr. 15	24.72	Aug. 12	21.00
Apr. 22	22.73	Aug. 19	24.25
Apr. 29	20.54	Aug. 26	23.26
May 6	20.74	Sept. 3	22.30
May 13	20.35	Sept. 10	20.28
May 20	19.25	Sept. 17	18.31

NEW YORK COMMISSION STARTS GAS INQUIRY

NEW YORK, Sept. 21.—Discovery and exploitation of extensive natural gas deposits in New York State may bring sweeping rate revisions in areas where the natural product is distributed, it is expected, following announcement that the State Public Service Commission will undertake a thorough survey of the natural gas industry of the State. Hearings will begin in Albany on October 7.

The aims of the investigation, according to Milo R. Maltbie, chairman, will be to discover what the present status of the industry is with respect to the production, transportation, sale and utilization of natural gas within the State. The investigation will also endeavor to determine what effect the discovery of new gas fields in western New York should have on the rate structures maintained by utility companies in up-State cities.

The order of the commission, in part, reads: "It appeared to the commission that the development and increased production in the natural gas fields in the State of New York and in contiguous territory and the present situation relative to transportation, sale and utilization of natural gas within this State are such that an investigation should be made by the commission. The commission's inquiry has been brought about also by the present situation relative to drilling, leases, intercompany agreements, rates and other factors."

It is also believed in gas trade circles that the possibility of the supplying of natural gas to New York City and environs in the near future has been a factor in the commission's present action. Hitherto natural gas has not been much of a factor in the operations of utility companies active in New York State, although some small up-State cities have been using the natural product for some time. Numerous controversies over gas rates, standards, etc., in other States where natural gas has been extensively developed within the past few years has also been a factor in the New York State Commission's decision to "get in on the ground floor" and establish standards and regulations for the natural product before its use becomes more widespread in the Empire State.

Standard Oil Co. of New Jersey, Cities Service Co. and Columbia Gas & Electric are all active in development of natural gas production in New York. Standard of New Jersey, through Lycoming Natural Gas Corp., a subsidiary, is building a natural gas pipe line to supply Syracuse and other up-State cities with the natural product, and is also negotiating for the sale of natural gas to Niagara Hudson Power Corp. Other natural gas pipe line projects in the State are also believed pending.

The New York State Public Service Commission has watched closely the procedure followed in the introduction of natural gas to many western cities, notably Chicago, where it is planned to base rates on the basis of B.t.u.'s rather than on the ordinary cubic foot basis. Chairman Maltbie of the New York State Commission is against this practice, contending that if the cheaper and richer gas is utilized the consumers should get the full benefit of the change. As it is customary procedure, with the introduction of natural gas, to revise bill methods to the B.t.u. basis in order to offset the decline in earnings which usually results from the use of a fuel with a higher heat content than natural gas, it is believed that companies utilizing natural gas in New York State will put up a strong fight for a change in billing methods.

SUMMARY OF STATEMENTS MADE SEPTEMBER 10, 1931, RELATING TO BUSINESS OF VARIOUS PIPE LINES FOR MONTH ENDING AUGUST 31, 1931

	Gross stocks	Runs from wells	Other receipts	Regular deliveries	Other deliveries
Nat. Transit	709,462.64	121,756.53	1,065,654.14	572,337.36	555,728.50
S. W. Pa. P. L.	437,987.83	64,160.09	1,108,507.17	470,477.88	693,331.70
Eureka P. L.	1,604,025.48	274,238.96	491,967.16	403,173.50	493,695.70
Buckeye P. L. (Macksburg)	304,905.35	225,597.43	121,292.71	209,652.58	153,038.56
Buckeye P. L. (Lima, etc.)	2,982,405.14	70,669.93	2,710,279.57	1,965,006.60	928,083.15
Buckeye P. L. (Cleveland)	41,579.11	11,149.05	152,986.21	2,191.00	153,686.76
Indiana P. L.	507,328.32	2,600.03	1,765,096.73	1,146,141.55	644,751.78
Cumberland P. L.	621,498.00	146,339.07	121.02	97,347.87	61,525.75
Southern P. L.	206,524.98	.....	155,102.71	67,327.53	91,229.16
Bradford Trans.	126,446.26	353,931.05	.....	385,531.21	.....
N. Y. Transit	117,395.23	26,817.39	173,555.05	184,459.53	.....
Northern P. L.	247,412.61	.....	544,045.19	194,193.95	315,287.11
Tide Water Pipe	862,114.87	23,863.67	.....	557,863.79	.....
Tuscarora Dev.	12,283.86	.....	.....	479,254.08	.....
Total August 31	8,781,874.48	1,321,027.60	8,288,606.65	6,715,358.42	4,095,358.17
Total July 31	9,145,137.67	1,388,351.50	7,201,001.23	6,371,582.53	3,533,715.18
Difference	363,263.19	67,323.90	1,087,605.42	343,775.89	561,642.99

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Sept. 12)

1930 High	1930 Low	Week ending Sept. 12 Sales	Week ending Sept. 12 High	Week ending Sept. 12 Low	Close Sept. 16	Stocks—	Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1	⅛	No sales	..	..	⅛	Atlantic Lobos	499,448	N.P.	....	5-28-30	..	..	..	..	1	⅛
16	6¼	No sales	..	..	..	Borne Scrymser	$1,000,000	$25	....	10-15-30	56½	44½	46½	25	25	11¼
51	41	No sales	..	..	..	Buckeye Pipe Line	$10,000,000	$50	$1Q	9-15-31	76	53	74½	55	69	39⅞
129½	101	No sales	..	..	..	Chesebrough Mfg.	$3,000,000	$25	$1Q‡	6-30-31	161	117	210	130	184⅞	104¼
3⅞	2	11,200	2⅝	2¼	..	Creole Petroleum (sh)	5,977,872	N.P.	....	.....	17½	9½	11¾	5⅝	7⅝	3
39	20⅝	200	27⅝	27¼	23	Cumberland Pipe Line	$1,500,000	$50	50cQ	6-15-31	114	67	75¾	40	65¾	20¼
36	24	100	32	32	31	Eureka Pipe Line	$5,000,000	$100	$1Q	8- 1-31	88	64½	70½	40	54¾	26
3	1	200	2	2	..	Galena Signal Oil	$16,000,000	$100	....	.....	13	4¼	6½	3	7	2½
72	49⅞	800	60	57	52	Humble Oil & Refining	$74,103,300	$25	50cQ	7- 1-31	114¾	59½	128	74½	119	57¼
18¼	9⅞	4,100	13	12½	11½	Imperial Oil of Canada (new) (sh)	25,421,768	N.P.	12½cQ	6- 1-31	104	56¾	41	22	30	15
21⅛	9½	200	11	10¼	..	Indiana Pipe Line (new)	$3,000,000	$10	25cQ	8-15-31	91⅞	74⅜	41⅞	26	41	14½
15½	8¾	11,900	12	11⅝	10⅛	International Petroleum (new) (sh)	14,247,088	N.P.	25cQ	9-15-31	55	35	30⅜	15	24	11⅜
17½	11¼	900	12	11½	..	National Transit	$6,362,500	$12.50	25cQ	9-15-31	32⅜	19⅜	25½	10⅜	22⅜	11½
14½	7½	100	8	8	8	New York Transit	$1,000,000	$10	25cQ	7-15-31	75	38½	17½	10	21⅜	10½
34¼	25	No sales	..	..	..	Northern Pipe Line	$2,000,000	$50	$2SA	7- 1-31	69	56½	63	41	51	26¼
15½	8	No sales	..	..	..	Penn Mex Fuel	$10,000,000	$25	75c	6-24-31	84	28	44½	20	32	12
16½	3¼	800	16¼	16⅛	16	Solar Refining	$4,000,000	$25	....	12-20-29	..	..	50	29	33	4⅞
23⅞	12⅜	700	16⅝	16	..	South Penn Oil	$30,000,000	$25	25cQ	6-30-31	71⅞	36¾	60¼	35½	45⅞	16½
17	10	No sales	..	..	..	Southern Pipe Line	$1,000,000	$10	50cQ	9- 1-31	19	15	22½	13	20⅞	8⅝
42½	34¼	100	42	42	..	Southwest Pennsylvania Pipe Line	$1,750,000	$50	$1Q	7- 1-31	102	70	70	60	64	32
38½	19⅛	25,900	25¾	24½	23	Standard Oil of Indiana	$348,175,069	$25	25cQ	9-15-31	95⅞	70⅞	63	45	59⅞	30
23⅝	15⅝	2,900	20	18¾	18⅞	Standard Oil of Kentucky	$25,654,516	$10	40cQ	6-30-31	179¾	122¼	46⅞	29	40½	18⅝
36½	19¼	No sales	..	..	..	Standard Oil of Nebraska	$4,649,225	$25	50cQ	6-20-31	54⅞	39⅞	50¼	40	48⅞	34⅝
62½	35	50	50	50	45½	Standard Oil of Ohio	$14,000,000	$25	62½cQ	7- 1-31	134	71	129	60	108½	43¼
3½	2⅝	No sales	..	..	..	Swan-Finch Co.	$861,466	$25	....	1-15-29	23¼	16	18	10	10	4

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus 50 cents extra.

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Sept. 12)

1930 High	1930 Low	Week ending Sept. 12 Sales	Week ending Sept. 12 High	Week ending Sept. 12 Low	Close Sept. 16	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1¾	½	700	½	½	..	American Maracaibo	(sh)	700,000	N.P.	....	.....	9½	3⅛	8⅝	1⅛	4½	½
16⅞	8¼	No sales	..	..	..	British American Oil Corp.		1,311,321	N.P.	20cQ	7- 2-31	55	32¾	62	7⅞	23	13⅜
2⅜	½	1,000	⅞	¾	¾	Carib Syndicate		$131.250	25c	....	.....	4½	3⅞	4⅞	1	2¾	⅝
20¾	8⅝	69,200	10	9⅛	8⅜	Cities Service	(sh)	24,290,359	N.P.	30cA‡	9- 1-31	90⅞	54	68⅛	20	44¼	13
84¾	61¼	900	63⅛	62¼	62⅛	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	9- 1-31	103¼	94½	98¾	84	93⅞	78¼
½	⅛	No sales	..	..	..	Colombia Syndicate		$2.000.000	$1	....	.....	3¼	.76	2	½	¾	⅛
2¾	1½	500	1⅝	1⅝	..	Consolidated Royal		$5,527,875	$10	5cQ	7-25-31	8⅞	6¼	11⅛	2½	5⅞	2
⅝	⅛	500	¼	⅛	..	Crown Central		.....	....	....	.....	..	..	..	..	..	..
5	2	100	3¼	3¼	..	Darby Petroleum (new)		1,019,392	N.P.	....	10-15-30	33½	3¼	26	6½	21¾	4¼
6	2½	500	3⅜	3⅛	3	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	2¼	1	11	2	11	2
40⅛	26	No sales	..	..	25	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	21⅛	7½	44	20¾	60	30
75½	38	5,300	53½	50⅛	50⅛	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	7- 1-31	165	101⅛	209	115	166⅞	58½
⅝	¼	7,100	⅛	⅛	⅛	Intercontinental Petroleum		$5,682,000	$5	....	.....	3⅜	1	2⅞	⅜	1¾	⅜
1⅞	½	1,000	½	½	..	Kirby Petroleum	(sh)	750,000	N.P.	....	.....	3	1¼	3⅝	1¼	3	⅞
1½	½	No sales	..	..	¾	Leonard Oil & Development		$50,000,000	$25	....	.....	9⅜	5⅛	6⅛	1	4¾	½
6¾	3½	200	4½	4¼	3½	Lion Oil & Refining	(sh)	250,000	N.P.	....	10-27-30	43⅞	20	38⅞	18	29	4⅞
25	13¾	4,800	15⅛	13¾	12	Lone Star Gas	(sh)	5,000,000	N.P.	22cQ	6-30-31	69⅛	48½	67⅞	28	55⅞	19⅝
½	⅛	6,300	⅛	⅛	⅛	Magdalena Syndicate	(sh)	850,000	$1	....	.....	1⅞	½	1¼	½	½	⅛
5	3	100	4	4	..	Margay Oil Corp.		160,000	N.P.	....	7-10-30	48½	32	38½	14	16	3
4⅞	1½	400	3¾	3½	3	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	8	2¾	6⅜	2¼	7½	1¾
½	¼	No sales	..	..	..	Mountain & Gulf		$4,000,000	$1	....	4-15-31	1¾	.76	1½	½	¾	⅜
5⅞	3⅛	500	4⅝	4½	..	Mountain Producers		$1,682,182	$10	25cQ	7- 1-31	28⅞	19½	22⅞	7	12⅛	3⅜
1½	½	1,000	1	¾	..	New Bradford Oil		$1,095,291	$5	....	4-15-31	5⅝	4¼	5	2½	3½	1⅛
3	1¼	200	1½	1½	1¼	New Mexico and Arizona		$1,000,000	$1	....	.....	11⅞	7⅛	9⅜	2¼	7¼	1½
3¼	1⅛	No sales	..	..	..	North Central Texas	(sh)	400,000	N.P.	....	9- 2-30	14¼	8½	18½	6⅛	11¼	2⅛
½	⅛	2,200	⅛	⅛	⅛	Pandem	(sh)	489,875	N.P.	....	.....	6	2⅛	3½	½	2½	¼
2	⅜	4,100	½	⅜	..	Pantapec Oil	(sh)	1,506,000	N.P.	....	.....	15⅝	8½	10½	1⅞	4⅜	⅞
3⅛	½	3,800	1⅝	1½	1½	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	12⅞	4⅛	8½	1⅛	5⅜	1
3	1¼	100	1⅝	1⅝	..	Ryan Consolidated	(sh)	500,000	N.P.	....	.....	12	4⅛	11	2	8⅝	2
1⅜	½	No sales	..	..	..	Salt Creek Consolidated	(sh)	1,286.300	$10	....	4- 1-31	7¼	5½	5⅞	1⅞	2½	½
7¾	4	800	5¾	5½	5⅜	Salt Creek Producers	(sh)	1,496,859	$10	35cQ	8- 1-31	35	23⅛	25⅞	9	15¼	5¼
5¼	1	6,000	1⅜	1	1¼	Sunray Oil	(sh)	1,163,185	$5	....	4-15-31	..	..	12	5⅝	10	2
1⅞	⅝	300	¾	¾	¾	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	9¼	4¾	6½	1¾	4½	⅜
3½	1½	No sales	..	..	..	Woodley Petroleum		$500,000	$1	....	3-31-29	8¼	4⅞	9½	2	5	½
2¼	¼	1,700	⅞	¾	⅞	Y Oil & Gas		100,000	N.P.	....	.....	8⅜	2⅛	2⅞	½	2½	⅜

*Ex-dividend. †Unit of trading less than 100 shares. ‡Payable monthly and monthly stock dividend of one-half per cent. §Paid in lieu of regular cash dividend of 2 per cent.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Sept. 12)

1930 High	1930 Low	Week ending Sept. 12 Sales	Week ending Sept. 12 High	Week ending Sept. 12 Low	Close Sept. 16	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
23	15½	1,400	18	17⅛	16½	Amerada Corp.	(sh)	922,075	N.P.	50cQ	7-31-31	43⅞	27⅛	42⅝	17½	31½	16½
12⅜	5	1,100	6	5	4⅛	American Republics Corp.	(sh)	209,180	N.P.	....	12-31-30	85	51⅜	64¾	12½	37	5⅛
31	20	No sales	..	..	..	Associated Oil		$57.260,300	$25	35c	6-30-31	53⅜	37½	47¼	34½	51	30
23⅝	11⅛	10,500	16	14¾	13⅛	Atlantic Refining		$66,763,775	$25	25cQ	9-15-31	66⅜	50	77⅞	30	51⅝	16⅝
14½	5¾	10,500	8	7½	6¾	Barnsdall Corp. A		$56,546,600	$25	....	5-11-31	54	20	49½	20	34	8⅝
12	5	26,600	8½	7⅞	7⅝	Continental Oil of Delaware	(sh)	4,741.554	N.P.	....	12-15-27	..	..	47⅞	18	30½	7¾
47	15¼	3,600	18¾	18	16	General Asphalt	(sh)	413,333	N.P.	50cQ	9-15-31	94⅞	68	94¾	42¼	71½	22⅜
68½	27	7,600	38½	34½	31½	Houston Oil		$24,968,600	$100	....	10-17-30	167	79	109	26	116⅞	29¼
4⅝	2	900	2¾	2¾	..	Indian Refining		$12,564,070	$10	....	10- 1-30	39⅝	9	53	13⅛	17	2
4½	2	500	3	3	2½	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	19¾	9⅜	18	7	12	3½
3¾	1	100	1¾	1¾	1¾	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	25½	12½	18½	5⅛	10⅜	1⅜
16¾	5¾	7,500	8½	7½	7	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	....	2-16-31	44½	25⅛	39⅞	22⅛	32	11
19½	7	10,000	10¼	9	8⅞	Ohio Oil	(sh)	6,648,052	N.P.	....	3-14-31	84	58½	79⅞	64¼	32	16
35⅛	25	200	30	30	..	Pan American P. & T.		$50,084,700	$50	40c	7-20-31	50⅞	38⅛	69	40½	46½	42
36½	24	No sales	..	..	..	Pan American P. & T. "B"		$121,110,650	$50	40c	7-20-31	59⅞	37¾	69¼	40½	67¼	30
4¼	1½	No sales	..	..	..	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	21⅜	11½	15¼	3	12¾	1¾
20	10	No sales	..	..	..	Panhandle P. & R. pfd.		$2,564,400	$100	....	.....	108	70	76	47½	20	47½
16⅝	4¾	14,400	7⅞	7	6	Phillips Petroleum	(sh)	2,593,075	N.P.	....	1- 2-31	53⅞	35¼	47	24¼	44⅜	11½
1½	½	1,100	⅝	½	..	Pierce Oil Corp.		$29,622,831	$25	....	.....	5¼	½	3⅜	1	2½	½
3⅜	1	1,000	1⅝	1½	1½	Pierce Petroleum	(sh)	2,500,000	N.P.	....	2-16-31	7	3½	5⅞	½	7⅛	1⅛
20⅜	6½	2,000	9¾	9⅝	8¼	Prairie Oil & Gas		$60,848,000	$25	....	3-31-31	68	46	65⅜	40½	54	11¼
26½	14½	4,200	15½	14½	14	Prairie Pipe Line		$101,250,000	$25	75cQ	6-30-31	280	172	65	45	60	16⅝
6	1⅞	300	2¾	2¾	2⅝	Producers & Refiners		$37,438,950	$50	....	9-15-23	29⅞	16	25⅞	4	11⅞	1
16	6	90	6½	6½	..	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	49⅝	41	46¾	25½	40	11½
11⅞	5½	3,100	7⅞	7⅛	6½	Pure Oil		$75,959,250	$25	....	9- 1-30	31⅝	19	30¾	20	27¼	7⅝
6⅜	1	1,200	1⅜	1¼	1¼	Richfield Oil (new)		$52,410,875	N.P.	....	.....	56	23	49⅝	20	9¾	4⅛
10¼	3⅛	900	4	3¾	3½	Rio Grande Oil	(sh)	1,236.270	N.P.	....	7-25-30	37½	32	42½	15	25¾	5
42⅞	18⅝	8,200	20⅜	18⅝	17⅝	Royal Dutch N. Y.	(sh)	611,303	....	$0.938	8- 4-31	64	44⅝	64	43⅛	56½	36⅞
20¾	10⅝	20,200	12½	11⅛	10½	Seaboard Oil of Delware (Mex. Seab.)	(sh)	1,244,383	N.P.	....	10- 1-24	72	4⅝	59⅜	8¼	37	9¾
34	13	10	13	13	..	Shell Transport & Trading Co.		£23.985.000	£1	$0.966	7- 6-31	47⅞	41⅜	51½	40⅝	48⅝	26
10¼	4½	15,900	5¼	5	4⅝	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	39¼	23¼	31⅜	19	25½	5¼
11	5	1,400	7	5⅞	..	Simms Petroleum		$8,353,620	$20	....	9-15-30	27½	18⅛	40⅛	15	37	5⅝
15⅞	6¼	28,800	9½	8¾	7¾	Sinclair Consolidated	(sh)	5,500.000	N.P.	....	4-15-31	46¾	17⅜	45	21	32	9¾
103	77	No sales	..	..	..	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	8-15-31	110	102½	111	103	112¼	86
12⅞	3⅛	800	5½	5⅛	5½	Skelly Oil		$27.441,250	$25	....	12-15-30	42⅝	25	40½	28	12	10⅛
21	16⅛	36,700	18	16⅞	16⅛	Socony-Vacuum	(sh)	31.923.072	$25	40cQ	9-15-31	..	..	..	..	..	..
51¾	31⅛	25,700	39	36¼	35⅛	Standard of California	(sh)	12,594,098	N.P.	62½cQ	9-15-31	80	63	81⅞	51½	75	42½
19	8¾	900	12	11	11	Standard of Kansas		$8.000.000	$25	....	3-16-31	37¾	15	33¾	18	49	14⅜
52½	30⅝	66,600	38¼	35¾	34⅞	Standard Oil of New Jersey		$634,999,200	$25	25cQ§	9-15-31	59⅜	37¾	83	49	84⅞	32½
45¼	31	700	37½	37⅛	33½	Sun Oil	(sh)	1,416,869	N.P.	25cQ	9-15-31	77	31½	68⅜	55	70	39
1¾	⅝	500	⅞	⅞	22⅜	Superior Oil Corp.	(sh)	766,979	N.P.	....	12-20-30	..	..	24	5¼	9⅜	¾
36¼	18	51,400	24¼	24¼	20⅝	The Texas Corporation		$246.204,900	$25	50cQ	7- 1-31	74⅜	50	71⅞	50	60½	28¼
6½	2½	1,600	4	3½	3⅝	Texas Pacific Coal & Oil Co.		$9.304,890	$10	....	12-31-29	26⅝	12⅛	23⅞	9½	14½	4
18	10¼	No sales	..	..	..	Tide Water Oil	(sh)	2.191.759	N.P.	15cQ	6-30-31	41½	19⅝	40	14	31	13
83	50¾	No sales	..	..	..	Tide Water Oil pfd.	(sh)	19,947,000	N.P.	$1.25Q	8-15-31	100⅛	86	97½	85⅛	94⅞	71
9	4	17,800	6⅛	5⅜	4⅝	Tide Water Associated	(sh)	5,560,424	N.P.	....	2-16-31	25	14¾	23½	10	17¾	5⅞
68	36	200	49	48	36	Tide Water Associated pfd.		$73.284.500	....	$1.50Q	7- 1-31	..	..	90⅞	74⅛	89¾	55
26⅝	14	8,800	17⅜	15⅛	14¾	Union Oil of California		$104,342,375	$25	50cQ	8-10-31	58	42⅜	57	42⅛	50	10⅛
25⅛	19¾	1,500	20	19¾	19½	Union Tank Car	(sh)	1,254,048	$100	40cQ	9- 1-31	128⅛	110	163¾	121⅞	38½	23
7⅜	1⅝	500	2⅝	2⅛	2⅛	Warner-Quinlan	(sh)	632,948	N.P.	....	7- 1-30	44⅞	26	42⅞	15	27	4¼
9⅜	3½	1,600	4¾	4⅛	4	Wilcox Oil & Gas	(sh)	428,907	N.P.	....	5-10-28	..	..	29¾	12⅞	21	6½

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus extra dividend of 25 cents.

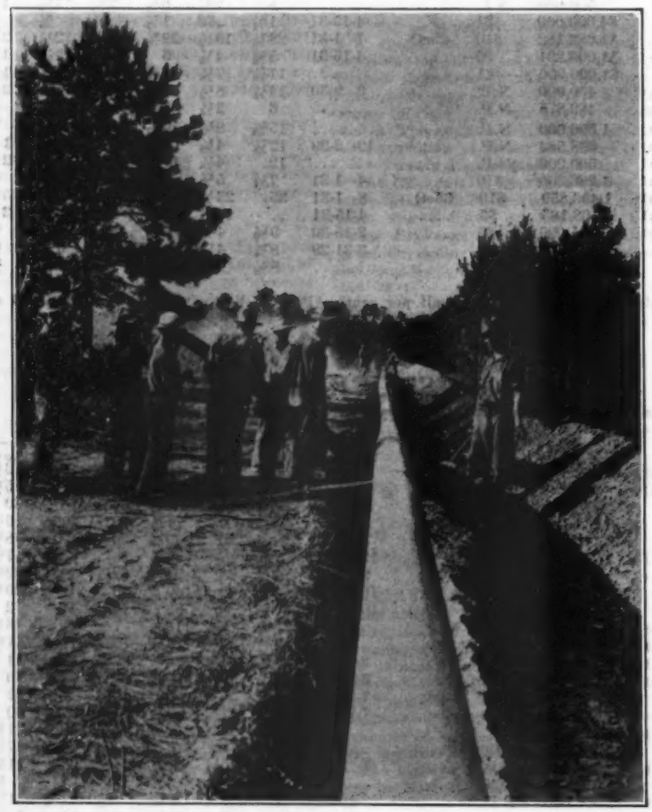
In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been stock split-ups.

EFFECT ECONOMIES ON TEXAS COMPANY'S LINE

(Continued from Page 21)

started the field was running wide open with little in sight to relieve the situation. The possibility of the rapidly mounting flood of oil more than overtaxing the limits of the field's outlets resulted in the hurried decision to lay the line. Consequently, in the letting of contracts it was specified that all work should be completed within a maximum period of 30 days.

To facilitate the speedy completion of the project the work was divided among three contracting companies. These were the Gregg Construction Co. of Longview, the N. A. Saigh Co. of San Antonio and the Apex Construction Co. of Lufkin. Due to unavoidable delays, one contractor was forced to sublet a portion of its job to Williams Brothers. These companies have kept as many as eight crews working constantly at various places along the right of way.



Texas-Empire Pipe Line Co.'s 12-inch line ready to be lowered into ditch near Overton, Rusk County, Texas.

The contractors encountered several unexpected handicaps which slowed up work to prevent the setting of even a better record than was made. Not the least of these obstacles was the existence of numerous lines, both large and small, crossing and criss-crossing the East Texas area. The "law" of pipe lining that the last line in must go under the other lines naturally increased the working time. During the laying of the line, the right of way, which is through a heavily timbered country, was covered with a bed of dry leaves and pine needles and because of the fire hazard much time was consumed, particularly by welders, to take precautions against starting any fires.

New Material Shipped Quickly

Quick shipment of material and equipment was one of the important factors which permitted the laying of the line in such short time. Everything on this project had to be obtained new, but orders were placed by wire and within three weeks the last of the material had been received on the ground. This was an unusual achievement but was accomplished through the splitting up of orders among as many companies and factories as possible.

As a result of this possibly no other line represents such a mixture of equipment and material and types of work. The pipe was rushed from four different mills; Diesel engines from four manufacturers, and pumps from three others. Three different types of welding also were used, including butt welding, chill rings and the bell and spigot.

In the past, speed in pipe line construction has been obtained largely by the sacrifice of low cost. In this project, low investment plus maximum capacity and economical and efficient operation has been combined with speed in construction. To obtain this, the system, as previously stated, has embodied a number of new economical features in pipe laying and station design and equipment.

Two Weights of Pipe

Not the smallest of the savings effected was in the use of pipe of two weights, namely 40-pound and 33.38-pound material. It has been customary on most, if not all, formed lines to use uniform pipe, the weight and strength of the pipe to be governed by the maximum pressure exerted at any point. On this line, the Texas Pipe Line Co. has taken advantage of the fact that at mathematically determined distances out from each station the pressure declines to a point low enough to justify the substitution of lighter and consequently less costly pipe. The place at which the substitution could be made naturally varied from station to station according to the topography of the country, the distance between stations, size of stations, etc., but on this project it was possible to use approximately 120 miles of lighter and cheaper pipe out of the total distance of 208 miles.

In general type of equipment and system of operation, stations on the line are all alike and the same as the new stations recently provided on the Texas Pipe Line Co.'s Gladewater-Douglass, San Augustine-Port Arthur system. Those stations have been somewhat revolutionary in pumping hook-up in that Diesel engines have been connected directly through speed increases to centrifugal pumps instead of through speed reducing gears to reciprocating pumps. Such stations have been put in with comparatively low investment and permit lower operating costs. Through this system the need for working tanks and extra handling has been eliminated with the pumping equipment hooked up directly on the trunk line. The type has facilitated the lessening of the amount of time required for construction.

Station Innovations

In the installation of these stations, the Texas Pipe Line Co. has followed out a new idea of providing one large, single unit to do the work of several units, which ordinarily would have been set up for the same operation. In this connection at four of the stations on the new line, the Diesel engines are the largest ever before used in pipe line work. The largest of these are at Diboll and at Warren where 1,525 horsepower units are to be used. At Nettleton and Rieber, 1,200 horsepower engines are being installed. Previously, 800 horsepower units have been the largest in pipe line service.

Equipment at the Nettleton Station, the northern terminus, includes one 1,200-horsepower McIntosh-Seymour Diesel four-cycle, wet piston engine with double pinion, turban type increaser, driving two Cameron 6-inch, five-stage pumps capable of 54,000 bbls. daily at 750 pounds pressure. The engine will be operated at 300 r.p.m. and the pumps at 1,800 r.p.m. The equipment at the Rieber station is the same except that the pumps are 8-inch, three-stage, capable of 79,000 bbls. daily at 550 pounds. This equipment at Rieber is separate from the pumping units used for oil through the Texas Pipe Line Co.'s own line. At Nettleton the one unit is the equivalent of three 400-horsepower engines with three triplex driven pumps.

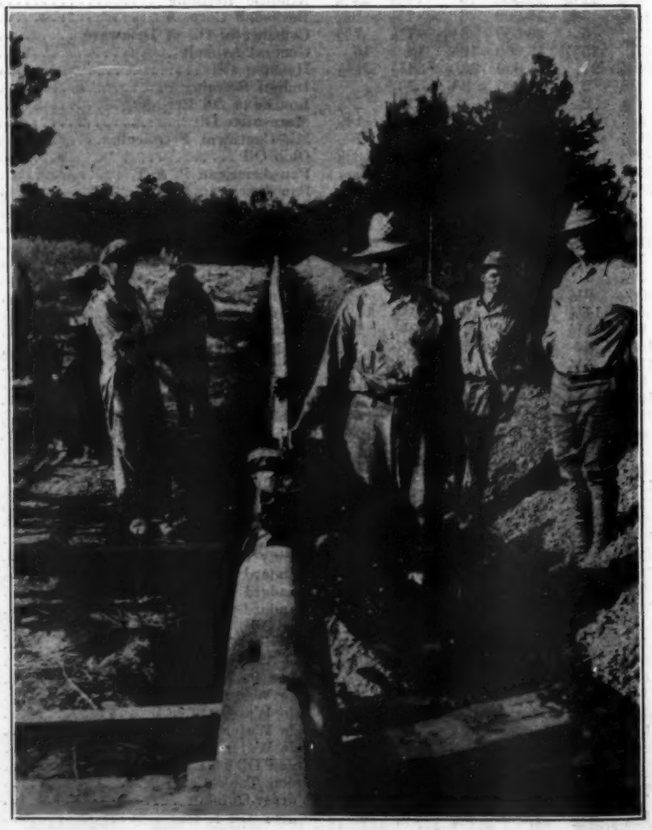
The Diboll and Warren stations also are identical, each having a 1,525-horsepower, four-cycle air injection McIntosh-Seymour engine driving two 8-inch Cameron centrifugal pumps through a double pinion Falk herringbone gear and capable of handling 79,000 bbls. daily each at 750 pounds pressure.

At Munro there is a low-speed, two-cycle McIntosh-Seymour engine with Worthington double acting pumps, 8-inch, four-stage, direct drive. Two high-speed Superior engines with four Gaso 5x10 duplex double acting pumps are being put in at Gilstrap. The Sour Lake station consists of two 810-horsepower, two-cycle, positive Scavengening wet piston Fairbanks-Morse engines, each driving one 8-inch Cameron pump through single pinion gear and capable of 79,000 bbls. daily at 750 pounds. The Douglass installation is two 800-horsepower De La-Verne solid injection, four-cycle engines, each driving an 8-inch Cameron pump through a single pinion Falk speed increaser.

No Stand-by Equipment

Investment costs at each station have been reduced by the elimination of stand-by equipment. In this the Texas Pipe Line Co. is working on the theory that the shutdown time on any regular unit is so small and the loss of capacity during shutdown time so slight that these items are not worth the additional investment and the amount of money tied up in the stand-by equipment. In most instances shutdowns are for minor repairs and adjustments and for only a comparatively few hours and during them oil can be pumped through the station without the aid of the stand-by units.

All the new pipe line stations have been rushed and have been put in at comparatively low cost and all equipment essential to proper operation of a Diesel engine power plant has been provided at each station. Each has suitable sump pumps, lub oil transfer pumps, lub oil coolers, lub oil centrifuge, purifiers, complete switchboards and auxiliary generators and with the generators directly connected to gears. A closed engine cooling system is used at each station. In this the heated water from the engines is accumulated in a small collector tank, and by means of a centrifugal pump driven from gear set, the water is pumped through two heat exchangers on the main



Putting on primer coating on Texas-Empire Pipe Line Co.'s new line near Overton, Tex.

pump suction line and back through the engines.

Of particular interest is the fact that each installation is one complete installation and when the air is turned on at the one control board to start the engine the entire unit is put in operation.

At any of these stations it is possible to move the unit in one piece. This was done at one station on the company's own line. This feature of large, single unit stations is of particular advantage over the multiple unit station in that time of construction can be materially reduced. Also of interest is the fact that the Gilstrap unit has been built on skids so that it can be moved easily as needed. This unit is more or less a field station.

Completion of this system has given East Texas a total of 17 trunk lines capable of a daily outlet of between 800,000 and 900,000 bbls. daily, these lines being exclusive of the numerous local lines to loading racks and refineries in that area.

THREE NEW EAST TEXAS REFINERIES OPERATING

(Continued from Page 23)

and operators believe that with a return to more normal conditions they will again be making gasoline shipments to the South. In these shipments including kerosene East Texas has an advantage of from one-eighth to one-fourth cent a gallon over other Mid-Continent refiners to the north and west. A company owning one of the largest plants in the field recently closed a contract for 5,000,000 gallons of high gravity, low cold test gas oil for shipment to East Coast via the Gulf Coast over the next several months.

The manager of one refinery believes that as the operators study their markets they will be able to develop other local outlets for their products so that the netback to their plants will be more profitable than when the products are sold for long-distance movement where they are forced to compete with other refining areas. Several plants have sold considerable road oil and as every traveler in that section of the country knows the dusty and sandy roads certainly offer a large potential market for that product.

Products

East Texas crude oil is relatively easy to refine. With proper fractionating equipment no trouble is experienced in making any of the regular gasoline and kerosene cuts. At this time some operators are not attempting to make a finished kerosene but are taking a wide distillate cut which is suitable for tractor fuel or furnace oil.

With the straight skimming operation the gas oil and fuel oil cuts have a cold test in excess of 100. Both products are easily cracked and if the present crude oil price is maintained, it is anticipated that this demand will increase. In this connection, it is known that at least one buyer is considering the possibilities of mixing the fuel oil and gas oil cuts with pipe line crude oil for shipment to Gulf where it will be used as cracking stock.

The Taylor Refining Co. at its Tyler plant and the Slack Petroleum Co. at its Willow Springs plant have included high-pressure coil equipment which serves the double purpose of reducing the viscosity of the fuel oil and adding to the yield of gasoline by partial cracking. It is probable that other plants will either install similar equipment or build regular cracking units to operate with fuel oil or gas oil. With the high-pressure coils the viscosity is reduced to around 40 which will widen the market during the winter months. However, due to the characteristics of the oil relatively little heat is required to liquefy the high cold test fuel so that it is satisfactory for use as fuel.

Type of Equipment

Practically every type of skimming equipment can be found in the field from the old type batch shell still to the modern topping plant incorporating the latest design in pipe stills and towers. The new 10,000-bbl. plant of the Petroleum Refractionating Corp., a view of which is shown in the accompanying picture, is being built exclusively of new equipment. The crude distillation will take place in a large pipe still. The efficient heat exchange between the crude charge and the hot liquid and vapors of the refined markets in part accounts for the large capacity obtained. It is expected that the plant will be able to handle up to 12,000 bbls. daily taking gasoline, kerosene, distillate and gas oil overhead.

Another plant is making preparations to manufacture special naphthas. The crude has been used in the manufacture of these naphthas in refineries located outside the field.

A half dozen plants are admittedly makeshift. The owners do not expect to operate them over any length of time unless later conditions justify an investment in permanent equipment. Three plants are using oil field boilers for stills. One small plant which has a large water supply is pumping the cold water from the wells through a closed type water condenser and from the condenser the water passes through a 4-inch line which serves drilling wells 4 miles from the plant. The same plant has a welded jacket around part of the vapor line from the tower to the gasoline condenser which serves to preheat the boiler feed water.

ASKS FEDERAL AGENCY TO PASS ON ARGUMENTS

(Continued from Page 23)

that the statute fails to define unreasonable restraint of trade. Nor have the courts defined it.

"It defies definition," Mr. Butler asserted.

"But the gravest objection to this vague and indefinite statute," the speaker asserted, "is that it provides that every offense against it constitutes a crime punishable by fine and imprisonment. The crime is created but not defined. The criminal features of the Sherman law as they are written and enforced by the Government are indefensible. They violate the most fundamental safeguards which, from earliest times, have protected men against the tyranny of government."

Obvious Remedy

The obvious remedy, he continued, would be to repeal the criminal provisions of the law, which deter men from entering into lawful contracts, because the uncertainty and fear caused by the Sherman law not only keep men from entering into unlawful contracts, but those which only reasonably restrain trade and are therefore lawful. But Mr. Butler said his committee did not consider that such an amendment as a practical matter could be expected. Therefore it was recommended that means be provided to make the criminal provisions of the statute inoperative through the voluntary solution of restraint agreements to a federal agency for advance approval.

"Paradoxical as it may seem," he added, "the proposed legislation conferring additional authority upon the Federal Trade Commission would to a considerable extent take government out of business by affording a new point of contact between them."

Under the present system, the Department of Justice is the only point of contact between business and government, and its appearance is the signal for trouble, he said. As at present constituted, both the department and the Federal Trade Commission are prosecuting agencies of the Government, Mr. Butler added. Upon the appearance of the Department of Justice in a case, business is immediately put on the defensive and "their relationship continues at arms length."

Under the proposed amendment, the commission would be substituted for the justice department.

"Government will, of course, remain in business to a certain extent," he continued, "but under a new relationship which is helpful rather than harmful, affirmative, not negative, forward, not backward-looking, and constructive, not destructive in character."

CRUDE PRODUCTION IS NOW STABILIZED

(Continued from Page 19)

field shall not exceed 500 cubic feet of gas per barrel of oil.

"It is further ordered that this case be and the same is hereby continued on the commission's docket upon the same terms and conditions as set out in Paragraph 16 of said order of September 2, 1931, and that the terms of said order, and amendments thereto, not in conflict herewith, be continued in full force and effect."

Statement by Conference

The following statement was signed by the representatives of the governors and the regulatory commissions of the Mid-Continent states:

"The governors of the States of Texas, Oklahoma and Kansas, and the regulatory commissions of these States, viz.: the Railroad Commission of Texas, the Corporation Commission of Oklahoma and the Public Service Commission of Kansas, having jurisdiction over the conservation of crude petroleum and natural gas, in joint meeting at the state capitol, Austin, Tex., September 18, 1931, after having considered the world oil stabilization program, submitted and approved at the Oklahoma City, Okla., oil stabilization conference, September 11, 1931, hereby record our hearty approval of the general program and purpose of this conference, in so far as the laws of our respective states permit.

"In like manner, we endorse the effort to limit the maximum production to the amounts recommended for the three States, to wit: Texas, 902,000 bbls.; Oklahoma, 546,000 bbls., and Kansas, 110,000 bbls., of crude petroleum, daily, for the remainder of the year 1931, and pledge ourselves to continue thereafter to co-operate to this end to the extent of our ability.

"We take this action in the belief that such program will tend to prevent physical waste and preserve our mineral resources to the people of the States we represent for our own generation and posterity."

Governor Sterling's Comment

Discussing the statement made by representatives of the Railroad Commission of Texas and the Corporation Commissions of Kansas and Oklahoma, in which Cullen F. Thomas of Dallas participated as his representative, Governor Sterling said:

"I think a good day's work has been done for the oil industry. I unreservedly endorse this report.

"A splendid spirit of unselfish co-operation has been shown by representatives of various states. I desire to record my appreciation to those who participated for the patriotic service rendered.

"I am not unmindful that the eyes of the nation interested in the oil industry are turned toward Texas. Texas is said to be the key to the situation. East Texas is the key to Texas.

"Realizing the responsibility resting on me as chief executive of this State, I wish to give renewed assurance to the world that I shall exercise all the power that in me lies under the constitution and laws of Texas to safeguard the natural resources of Texas as a sacred heritage to the people of our day and those to come after us."

Hearing on Rest of Texas

The Railroad Commission set for hearing at Austin, September 30, the question of fixing allowable production limits for the rest of Texas except East Texas and the Panhandle, and for Amarillo, October 3, on the Panhandle fields.

Doing a fast but thorough job of coating and wrapping on Texas-Empire Pipe Line Co.'s new line.

CONTRACTS FOR PUMPS AWARDED BY STANOLIND

The Stanolind Pipe Line Co. has awarded contracts for the new pumping equipment needed to increase the capacity of its line from Oklahoma to Chicago, Ill., and has bought from the Prescott Co. of Menominee, Mich., six 48,000 bbls. per day capacity 6½"x36" horizontal triplex pumps for 900 pounds working pressure. These pumps will be direct connected to six six-cylinder, 750-horsepower De LaVergne Diesel type oil engines and these units will be installed at stations west of Kansas City, Mo.

At the same time the Gould Manufacturing Co., Seneca Falls, N. Y., was awarded contract for two 48,000 bbls. per day capacity 6½"x36" horizontal triplex pumps for 900 pounds working pressure, to be direct driven by two five-cylinder Fairbanks-Morse Diesel oil engines. These pumps will be used in stations between Kansas City, Mo., and Chicago.

The Thomas Flexible Coupling Co. of Warren, Pa., was given the order for all flexible couplings used between engines and pumps.

J. B. WASSON DEAD

James Brockington Wasson died at his home in Cleveland, Okla., on September 15, age 85 years. Mr. Wasson had been in the oil business since 1866. He was born in Scrubgrass, Venango County, Pennsylvania, December 24, 1846. He came west to Sedan, Kans., in 1904 and to Cleveland, Okla., in 1905. One son, Wilford J. Wasson of Cleveland, and two daughters, Mrs. O. H. Henderson and Miss Margeret E. Wasson of Oklahoma City, and two brothers, William Wasson of Oklahoma City and Charles Wasson of Wichita, Kans., were among the surviving relatives. Funeral services and burial were conducted in Cleveland on September 17.

TIME HAS ARRIVED TO RAISE CRUDE PRICES

(Continued from Page 19)

of 36 gravity crude oil in the Mid-Continent area was $1.29. Now it is 62 cents. With such a decrease in production and such heavy withdrawals from storage, why has the situation not been reflected in higher prices? Why have such favorable conditions had just the opposite effect to that which should obtain? The answer heretofore has been the industry feared what might happen at Oklahoma City, Seminole, East Texas or some other flush field.

That answer no longer will satisfy. The industry now knows approximately what quantity of crude oil will be produced during the remainder of this year. It can plan its operations accordingly and the time has come to raise prices to a level which will permit the operators to live and conduct their business without loss.

The time also has come when companies must plan their operations to insure future supplies of crude oil. It took about 40 years to discover East Texas. When the flush is off at East Texas and Oklahoma City, where will many companies get their requirements of crude oil? This question already is worrying officials of some companies and plans are being made and, in some instances already are being worked out, for conservative development work which will provide the companies with crude oil reserves when they are needed.

The area between Oklahoma City and Seminole in Oklahoma is being investigated carefully in an effort to procure promising acreage which may be drilled. Increasing activity along this line is reported from other states. It is only good business policy to protect the interests of a company by insuring its future crude oil supply and the question of such a supply in the comparatively near future is a matter which is providing thought for many oil company officials.

LAWYERS HEAR OF INDUSTRY'S PROBLEMS

(Continued from Page 22)

facts might not necessarily be waste under another—and every pool presents different facts. On the other hand, if the facts are known it is not difficult to determine whether waste is or is not taking place. In like manner, proposed bills to promote unit operation set the procedure out in great detail, whereas unit operation should be built to fit facts of the individual pool. The owners collectively in each pool should formulate the terms and style of the unit for that pool. It is sufficient for society that the pool be unitized, having due regard for the rights of all the interested parties.

If lawyers were to have incorporated in the law a few simple principles, the absence of which is causing most of the trouble, then engineers would have no difficulty in evolving satisfactory proration and unitization practices. The one most needed is some standard by which each owner's proportion of a common pool can be determined while the product is yet in the reservoir, in which event we assume he would be protected in his enjoyment of that proportion. The principal difficulty of the industry arises out of the fact that the courts fixed upon oil and gas that status of wild game and legislators have found themselves unequal to the task of formulating adequate game laws. As a consequence we see happening to the nation's supply of oil and gas the same ruthless destruction that characterizes the capture of wild game when no game laws exist. There is no means to determine how much each owner is entitled to extract. The only standard set upon him is that his proportion of the reservoir content shall be taken out of the reservoir through wells drilled on his own land which again is contrary to engineering principles for the reason that his land might be so located on the structure as to make extraction at that point exceedingly wasteful.

Determining Pool Content

Lawyers have advised us if engineers can determine within reasonable bounds, not at all with mathematical accuracy the fertility of that portion of the producing formation that lies under the surface of each proprietor then the acreage could be made the standard of each owner's rights. Following that suggestion as chairman of an engineering committee studying the problem, we circularized some 50 engineers with inquiries as to whether in their judgment it is possible to make determinations within the standard mentioned, and if so to describe methods by which it could be done. Almost without exception replies were in the affirmative. We believe that would be a proper standard.

Complaint is made that legislators are attempting to interfere with the free working of the law of supply and demand in the oil industry. This is a misstatement of fact, for the reason that competitive drainage nullifies the operation of the law of demand and supply to the extent that this law cannot operate in the oil industry. We have not heard any claim that the law of demand and supply operates in respect to the killing of game. For the same reason that it is absent there it is likewise absent in the oil industry. The only chance for it to operate in that industry is to speed up or slow down the search for new pools.

So long as the discovery of new pools was not greatly in excess of consuming capacity, less difficulty was experienced by the industry. But during recent years science has developed means of discovering pools of oil and extracting their content more rapidly than the world can consume their output and the period of chronic overproduction has ensued.

Another characteristic of this method of development is that a well is largest at its birth and declines rapidly with age but the operating cost does not decline proportionately. Consequently, during periods of overproduction, old wells which might yet produce one-half or two-thirds of their ultimate production and should be conserved cannot compete with the temporary flush production of new wells and new pools.

A third difficulty that American operators face is that the shallow low cost deposit in the United States are largely depleted, whereas in foreign fields they still exist in great quantities; thus American oil is not able to compete on an equal basis with foreign oils and is being forced out of competitive markets.

Since the beginning of the industry the United States has supplied two-thirds of the world's oil demand but during recent years foreign discoveries have been so extensive that known foreign reserves are several times those of the United States. At the present time a barrel of high production-cost oil from Texas meets in London a barrel of low production-cost oil from Persia; one from Los Angeles meets in Tokio another from the Dutch East Indies. Even in New York one from Tulsa meets one from Maracaibo—with the inevitable result that occurs in every case where a high production-cost product is met in competition with one of low production-cost. But under the Unite States type of ownership in oil and gas, when the flow of the field has once been started, there is no way to stop it—except by martial law.

Code of Principles

With the assistance of several eminent members of your profession certain engineers have formulated the following principles, which we believe should be incorporated into the law of oil and gas so as to become an established practice. Their thought is that system, order and stability can be brought about in the petroleum industry if that result is achieved. These principles are in harmony with popular thought but they require the authority of legislative enactment before they can be enforced. They are as follows:

1. That each landowner or his assigns shall be declared entitled to those proportions of the oil and gas in the common reservoir that underlie his land, and shall be protected in their enjoyment.

2. That the forces of expulsion native to the reservoir shall be declared common attributes of the reservoir to be conserved to the common interest of its several owners, and shall not be dissipated except as they are efficiently utilized in driving oil and gas from the reservoir rock to the point of extraction. When these forces have been so utilized then both the gas and oil should be delivered to their respective owners.

3. That the State in its function of preventing waste of natural resources may require and prescribe efficient methods of exploiting oil and gas fields.

4. That during the periods of general overproduction the State, in order to prevent waste and/or to protect the producers as per item 1 above, may determine from time to time the maximum amount of oil and gas that may be produced within the State and to that end shall have authority to limit the production in any pool to not exceed the market demand for oil therein.

5. That authority should be delegated to a state agency to formulate rules and regulations from time to time for the application and enforcement of the above principles.

PLANS BEING MADE FOR CONGRESS ON ROAD OILS

The Western Petroleum Refiners Association in co-operation with the Tulsa Chamber of Commerce is preparing for the Road Oil Congress to be held in Tulsa October 8 and 9. This will be attended by highway officials from the Oklahoma State Department, counties, and from the adjoining states, for the purpose of studying the qualities of Mid-Continent road oils and the best practices for constructing oiled roads.

The technical committee of the association and the Petroleum Research Bureau of the Tulsa Chamber of Commerce will arrange with the refiners for the presentation of papers covering the manufacture of this oil. An important feature of the meeting will be the discussion of each paper. Plans are being prepared for taking all those attending the convention on a 75-mile drive for the purpose of inspecting recently completed oiled highways. An exhibit is being arranged showing maps, soil types, specimens of road oils, charts, and many other items pertaining to road construction.

A meeting of representatives from the refineries and highway commissioners, held at the Tulsa Chamber of Commerce, September 17, considered some of the subjects to be considered at the congress. It appears that there is a lack of uniformity in the specifications for road oil, and this subject will be explained. Attention will be directed to the high quality of the road oil made from Mid-Continent petroleum.

The State of Oklahoma is to expend $5,000,000 next year on road building, a large part of which will be for oil treated roads, which are especially adapted to the Southwest. Kansas will probably purchase in excess of 15,000,000 gallons of road oil next year for surfacing over 1,000 miles. This year roads have been completed in Kansas using 16,000 gallons of oil to the mile.

GULF COAST MARKETS WEAK

HOUSTON, Tex., Sept. 22.—A general weakness in refinery markets was indicated on the Gulf Coast the past week following a period of uncertainty over the East Texas situation. The tank car market on gasoline, which had been held at 5 cents, was offered at the opening of the week at 4½ cents with bulk motor fuel quoted at 4⅜ to 4⅝ cents. The weakness developed despite the fact that coastal refiners are reported in good shape as to stocks.

Bulk fuel oil also slipped off with sellers offering Bunker C material from 43 to 48 cents. Bunker markets, however, have held firmly and continue posted at 55 cents. Gas oil again is available from 2¼ to 2½ cents. Pale and red oils are unchanged in general postings although some distress material again is making its appearance at cut prices.

NEW STRUCTURES IN MEXICO

Structures favorable for accumulation of petroleum and natural gas exist in an extensive region of southern part of Nuevo Leon state and northern section of Tamaulipas state, according to a commission of the Mexican National Geological Institute which examined the zone.

The commission examined territory extending north to Rio Grande, between Reynosa and Ciudad Mier, Tamaulipas state; westward through Congregacion Nogales, Cerralvo, Papagayos and Ramones, Nuevo Leon state, and southward to town of China in that state, and eastward to Reynosa, Tamaulipas state. The commission believes that petroleum and natural gas indications in the region are worthy of exploitation.

TANKER MOVEMENT

WASHINGTON, D. C., Sept. 19.—The important place taken by the oil industry of the United States Merchant Marine and foreign trade, was told before the eighth annual meeting of the Pacific Foreign Trade Council, at Oakland, Calif., by Commissioner S. S. Sandberg of the U. S. Shipping Board. More than 30 per cent of the total water borne American foreign freight movement for the year 1930 was in tankers designed for carrying liquid or semiliquid cargoes in bulk such as petroleum products, etc. In nearby ocean trade they carried 56 per cent of the total cargo.—C. E. K.

POOLS IN EAST TEXAS HAVE PECULIAR GAS

(Continued from Page 30)

ready been equipped to use chemicals in the tubing to reduce paraffin troubles and in a paper to be presented before the meeting of the Southwestern district of the American Petroleum Institute, Division of Production, to be held in Lufkin, Tex., September 24 and 25, Blaine Johnston of the Simms Oil Co. describes the type of apparatus used for this purpose.

Gas From Field Peculiar

Before the Railroad Commission in Austin, Tex., testimony was offered in regard to the analysis of East Texas natural gas that accompanies the oil and below is given a table containing one of those analyses together with several others that have been made by some of the major companies operating in that area.

ANALYSIS OF EAST TEXAS NATURAL GAS

Gases or vapors—		At 0 lbs.		At 33 lbs.	At 50 lbs.
Methane	49%	43.1%	36.7%	42.7%	53.5%
Ethane	11%	13.0%	14.5%	20.2%	12.9%
Propane	19%	22.3%	23.5%	21.5%	18.3%
Isobutane	3%	....	....	....	....
Butane	9%	13.9%	14.9%	8.9%	10.1%
Pentane and heavier	8%	7.7%	10.4%	3.1%	5.2%
Nitrogen	..	....	....	3.6%	....

Gasoline contents reported at from 3 to 5 gallons per 1,000 feet.

While there is a very apparent difference in the several analyses given above it must be remembered that they may have been taken from a very wide area and under different conditions both as to field sampling and laboratory work but there are common characteristics for all of the above analyses and they are the low methane contents of this gas with the corresponding high propanes and heavier gases.

In an article appearing in this week's issue of The Oil and Gas Journal on bottom-hole pressures in the East Texas Field it is shown that the original pressures in this field varied from 1,600 to 1,560 pounds. Tests for temperatures at the bottom of wells have shown as high as 162° F. in one water well on the west edge of the field and it is found that the oil as it is produced has temperatures at the casing head from 120° to 142° F.

It would therefore seem to follow that at underground pressures of 1,600 pounds with temperatures of about 140° F. all gases heavier than ethane would have been liquefied and have existed in that form along with the crude oil.

If this line of reasoning is correct this would tend to reduce the viscosity of the crude oil underground and make it of much higher A. P. I. gravity than that recorded for the oil as produced which varies from 38.4° to 40.0° A. P. I. Such a light oil could therefore hold in solution a much higher percentage of methane and ethane gas than that shown by the analyses given above.

It is reported that the natural gas-oil ratio for this field is about 325 feet per barrel of oil. Upon this basis of the above analyses it appears that the average methane and ethane contents of this gas is about 59.3 per cent of the total amount. This would therefore mean that of the 325 feet produced with each barrel of oil about 193 feet of this gas is of the lighter gravity and probably existed in a gaseous state underground.

For the normal 38.4° to 40° A. P. I. oil at pressures of 1,600 pounds per square inch and temperatures of 140° F. curves that have been prepared by the U. S. Bureau of Mines and others who have worked upon the solubility of gas in oil, indicate that this oil in its natural state is not saturated with gas. In other words, it seems quite apparent that no free gas exists with the oil in the sands in the East Texas Field.

Gases May Have Migrated

While it is quite true that low gas-oil ratios have been found in other pools in this country this particular instance seems to present some rather unusual conditions in that the gas is low in methane content and high in the heavier gases. It is reported that at 300 pounds compression pressures about one-third of the volume of gas passed through the compressor will be liquefied but in as much as the product is a very wild gasoline only about 40 per cent of this liquid can be stabilized and shipped as natural casinghead gasoline.

The question naturally occurs to anyone making investigation into this peculiar state of affairs as to what has become of the additional methane that might be expected to have existed with an oil of this character and there seems to be two possible hypotheses that may be offered to explain what may have happened in this oil reservoir.

The first explanation of why this gas is low in methane content is that migration of the light ends of the gas has taken place through the east edge of the East Texas oil pool and a portion of the original methane has escaped to points higher on the Sabine uplift to the east where it is now found in the very prolific gas fields of that area.

As a means of transporting this gas from East Texas Pool oil sands to the top of the Sabine uplift it can be shown that there are bodies of the Tokio sand extending across the Sabine uplift to or very close to the eastern edge of the East Texas Field. If this Tokio sand is connected with the Eagle Ford or Woodbine sands of the East Texas Pool it is quite probable that some drainage of light gases may have occurred during the ages following the capping of the producing horizon of the East Texas Pool by deposits of Austin age.

Naturally the question will occur as to why heavier gases and at least part of the oil did not migrate to points higher on the Sabine uplift if the light methane gas moved to the eastward from the East Texas Pool.

This may be explained by following some other hypothetical theories advanced by geologists who have studied conditions in East Texas in considerable detail which indicate that the sands and shales of the East Texas Pool of Eagle Ford age were probably laid down upon the western edge of the Georgetown lime that forms the cap rock of the Sabine uplift during Woodbine age. In this Eagle Ford stratum it has been shown that sands very similar to those of the Woodbine age exist and this leads to the theory that the old Woodbine sea deposited higher up on the Sabine uplift a considerable quantity of sand which later was washed back into the Eagle Ford sea and formed the 40-mile long beach that was later to be discovered as the East Texas oil pool.

If the land mass to the east of the beach during Eagle Ford age was of very low contour and had very little if any elevation above the sea level to the west it is natural to assume that this point of contact between the sea water and the Georgetown lime was a place of swampy character and might be well likened to the present conditions existing along the Gulf Coast where low marshes and rice lands exist.

Presence of Active Volcanoes

In these low marshy places it is quite possible that some of the sands laid down during former Woodbine age may have remained and other sand members extending from the east and over the Sabine uplift have come in contact with them. Over the whole was later laid down the Austin chalk and during Austin age it is reported that active volcanoes in the vicinity of what is now the Gulf Coast of Texas and the State of Arkansas expelled huge quantities of volcanic ash now identified in cores from wells in the East Texas Pool as bentonite.

If this volcanic ash fell along the shore line and over the marshy ground to the east of the old shore it is possible that portions of the sand lying directly over the Georgetown lime might have been filled with it and in this way the porosity of the sands greatly reduced. It is known that bentonite occurs in cores from some producing wells in such quantities as to materially reduce the porosity of the sand and it is reported that the porosity of East Texas producing horizon will vary from 9.95 to as high as 27.3 per cent.

If some of this tight sand existed along the contact between Eagle Ford-Woodbine sands on the old shore line and the Tokio or some other sand member extending over the Sabine uplift to the eastward, it is mechanically possible that it acted as a filtering medium and permitted only that portion of the gas of the lightest gravity to escape and held back in the East Texas Pool formations about 50 per cent of the methane together with other heavier gases as shown above in the analyses.

The gas fields over the Sabine uplift run very high in methane contents and are reported as containing from 96.5 to 97.3 per cent methane with no ethane and from 0.4 to 1.4 per cent carbon dioxide and 2.1 to 2.3 per cent nitrogen.

It is of course quite possible that this oil as formed was low in methane content, or if this marsh gas was generated by decomposition of organic material in the old shallow Eagle Ford sea or during later ages it might have escaped to the atmosphere as made and have been lost to the oil entrapped in the formation and now being produced.

When pressure conditions are considered together with known conditions of relatively high temperatures in the oil and the water bodies in contact with the oil in the formation it seems quite possible that there existed at one time more gas than is now present in the barrel of crude as produced and if the experience in producing other fields can be taken as a criterion it would seem to follow that at one time during the life of this petroleum reservoir there has actually existed more gas with the oil.

In compressing the gas it is known that a large portion of it will be liquefied at 300 pounds pressure and as the underground pressure in the formations from which the oil and gas are produced is about 1,600 pounds it seems quite logical to assume that the propane, butane and pentane exist as liquid underground and this liquid mixed with the natural crude oil will cause it to have the properties of taking into solution much more methane and ethane than found in the samples reported above.

Handling Gas on the Lease

The usual practice now followed in the East Texas Field is to produce the wells through chokes and back pressure into oil and gas separators and operate the separators at from atmospheric to as high as 50 pounds pressure. The gas is released from the separators and conducted to risers where it is being burned.

It has been noted, however, that from all stock tanks to which the oil has been delivered after passing through the oil and gas separators there issues great clouds of heavy vapors and from this observation it is only logical to assume that a portion of the gas has been carried over to the stock tanks entrained in the oil at the release pressure maintained on the separators.

In as much as many of the companies are now planning to treat this gas for its natural casing gasoline contents and in some cases to compress it to approximately the pressures existing in the formations underground and recharge them with it, plans are being made to pull a vacuum of from 7 to 9 inches of mercury column on the oil and gas separator and in this way it is hoped that the amount of entrained gas going over to the stock tanks will be materially reduced and this additional gas made available for the gasoline or repressuring plants.

Engineers who have been making a study of the solubility of gas in oil at various pressures and temperatures state that conditions in East Texas present a very interesting problem and it is planned to do considerable work at the wells there and secure representative samples that can be carefully analyzed in the laboratories and from the results obtained it seems possible that much knowledge of interest to the producing companies will be obtained.

In the meantime, the orders of the railway commission restricts the gas-oil ratio to not to exceed 500 feet per barrel of oil and a new order has just been issued limiting the production per well to 185 bbls. per day and under these conditions it would seem that conservation of underground energy will occur and if the practice of burning the gas in open torches is discontinued and it is sent to gasoline or repressuring plants an added conservation of the oil and gas in this field will be accomplished.

Ditching for Humble Oil & Refining Co.'s 16-inch gas line east of Overton in Rusk County, Texas.

BARNSDALL REFINERY HAS COMBINATION STABILIZER

(Continued from Page 28)

unit compactly to fit the location which was most desirable from an operating standpoint.

Operation Flexible

Since the installation of the unit it has been possible to accurately control the vapor tension of finished motor fuel. For illustration, a blend is determined that will produce a well balanced motor fuel. The vapor tension of the components of the blend other than the Cross pressure gasoline and recovery plant gasoline are known. With this information it is easy to determine the desired vapor tension of the Cross pressure gasoline and recovery plant gasoline. The operating conditions of the stabilizing unit are then set to produce this desired vapor tension of the Cross pressure gasoline and recovery plant gasoline so that when the stabilized product is blended with the other constituents it will give a well balanced motor fuel.

The unit was designed and the materials furnished by Black, Sivalls & Bryson, Inc.

SINCLAIR SEEKING MORE CRUDE FROM EAST TEXAS

AUSTIN, Tex., Sept. 21.—Henry L. Phillips, president of the Sinclair Oil & Refining Co., said in a statement issued here that his company is actively soliciting new connections in the East Texas oil field, and offering to pay the posted field price of 68 cents a barrel on 35,000 bbls. daily additional purchases.

He said his company has found that several other oil companies are also trying to secure new connections and offering the posted price for the oil.

Sinclair is now taking 25,000 bbls. daily, and is willing to take 62,000 bbls., he said, at the posted price.

Mr. Phillips said he knew of no instance in which producers were making contracts to sell East Texas oil below the posted price.

MAINTENANCE IMPORTANT IN MEASUREMENT OF GAS

(Continued from Page 112)

and tests will assist in keeping the meters accurate and efficient.

1. The diameter and length of meter runs must be correct and the internal surface free from burs or corrosion which serve to divert the straight flow of gas and cause inaccurate measurement.

2. Gauge lines should be properly located and free from corrosion or foreign matter which might hamper the rapid transmittal of pressure change from the meter run to the recorder.

3. Differential and static recorders should be checked at least once every 10 days to ascertain if they have been jarred or loosened from their correct setting. Adjust pen arms so that they are properly and work freely throughout the entire range of the meter chart.

4. Orifice plates should be removed occasionally to clean any incrustation that might accumulate around the opening. Orifice fittings should also be checked to ascertain if they are seated properly and are tight against the face of the casting. Plates, either smaller or larger, are changed to bring the recording within the proper range.

5. Temperature and gravity of the gas are taken at least once a month or whenever the gas changes, for the purpose of correcting the orifice coefficient.

6. Meter runs and field lines must be kept free of liquid, as a large accumulation will cause extreme surging, resulting in erroneous readings.

7. All joints around meter, lead lines or orifice must be tight, as small leaks may cause considerable error.

8. In cases where gas heads badly, causing a continuous series of high and low differentiation records, a one-hour clock should be installed for a period of several hours to assist the chart reader in placing the correct value on the heads.

9. Attention should be given each lease daily relative to its operation, which might indicate the reason for a high or low reading on the gas to and from that lease.

10. The meter systems, both wet and dry, should be checked as often as possible for leaks, both as a safety precaution and conservation of the gas.

HUMPHREYS CORP. SELLS ITS HOLDINGS TO HUNTER

HOUSTON, Tex., Sept. 21.—Sale of properties of the Humphreys Corp. of this city to a group headed by N. W. Hunter and O. R. Seagraves has been effected following negotiations extending over a period of over a month. The properties affected by the trade include more than 500 acres on the Barbers Hill Dome, between 2,500 and 3,000 bbls. daily production and equipment. A consideration totaling $3,500,000 is involved.

With the sale Humphreys Corp. is liquidating all its holdings, dissolving the company and surrendering its charter. J. S. Abercrombie, who for the past year has been general manager of the company, has been appointed liquidating agent.

The sale has been made directly to the Nat Hunter Producing Co., of which N. W. Hunter is president. This company at present is operating in the East Texas Field. It has been assumed generally that the deal is for the Moody-Seagraves interests, which are active in the oil and gas business in coastal and southwestern Texas, as well as East Texas.

Terms of the sale provide that the purchaser assume a total indebtedness of $1,092,409.48 as of October 1, 1931, and that 25 per cent of the sale price of oil produced from that date shall be applied toward retiring the indebtedness, and, if more than 500,000 bbls. of oil is produced within two years from October 1, 50 per cent shall be applied toward the indebtedness.

Additional cash payments include $125,000 paid on option exercised September 14 and $525,000 to be paid on or before October 1. The balance of the consideration is in deferred payments, $757,590.52 to be paid on or before September 1, 1932, and $1,000,000 on or before September 1, 1933.

CO-ORDINATION IN GAS INDUSTRY ADVOCATED BY R. W. GALLAGHER

By R. W. Gallagher
Vice President, American Gas Association, Cleveland, Ohio*

Without a doubt we are now passing through one of the most unusual periods ever experienced by our industry. I refer particularly to the phenomenal expansion of our service which is taking place from certain natural gas fields, the growing use of higher hydrocarbon gases, and the numerous developments being effected in the design and construction of gas appliances. These items coupled with the fact that business in general is passing through one of the most severe depressions ever recorded in American history combine to present a very unusual situation. Such a combination of circumstances calls for more caution, an exhibition of greater courage, and the application of better business judgment than ever before.

Gas appliance manufacturers, particularly during the past two years, have made notable progress in bringing out new models and designs which should possess added sales appeal and open new markets for our product. The association's testing laboratory has also made splendid progress in bringing about a greater degree of standardization of domestic gas equipment and in improving its performance. Furthermore, it has likewise completed considerable research that should be of great value in meeting future production, distribution and utilization problems. All of these engineering developments will assist in opening new markets, improve the quality of our service, and aid in promoting the general use of city gas. Despite these facts, however, our industry's position is not all that could be desired and in far too many instances we find manufacturers as well as some of the smaller utilities facing financial difficulties. These conditions and others that might be pointed out indicate very definitely a lack of proper co-ordination of effort. Without sincere co-operation on the part of the manufacturer, the utility, and in short, the entire gas industry, the full potential of our opportunity toward greater progress and permanent growth will not be realized.

An Excellent Start

The association's executive board, during its annual spring conference, held in Atlantic City on May 2, through the adoption of its co-operative merchandising principles, made an excellent start in dealer co-operation. In this problem of dealer relationship, it is quite natural to suppose that manufacturers as a group hold some opinions in respect to its solution. The gas industry would like to know what those opinions are, and it is, therefore, with considerable satisfaction that we hail the formation of group activities within the Manufacturers' Section because you are now afforded a medium through which your much sought for views can be expressed.

If we trace the history of this branch of our industry back over the past 25 years we cannot help but be impressed by the courageous and tireless efforts that have been put forth by the large majority of such manufacturers. With out exception, they have endeavored to maintain their position against ever increasing competition, which has continually forced the prices which they received for their products lower and lower, and in many instances below the limits of any economic justification.

Electric Example

Compare that situation with that in the electric industry where the concentration of manufacture in relatively few strong hands has brought about the building up of large reserves which have given the manufacturers capital to prosecute thorough research and to create through their sales efforts the market for their appliances. I feel, however, that the gas industry is at last recognizing that the problem is too big to be dealt with through individual efforts; that it must be handled as a national problem and that they are now ready to subscribe to properly co-ordinated plans along these lines. If this is conscientiously done, I am firmly convinced that there can be but one outcome; namely, prosperity for the entire industry.

Closer co-operation between utilities and the manufacturers in matters affecting gas service is highly desirable. In some instances there has been a tendency on the part of one party or another to shirk responsibility. Unquestionably it is the manufacturer's duty to provide the customer, through his dealer, with appliances which are first of all safe, and second, durable and efficient. Furthermore, such equipment should come supplied to satisfactorily meet the gas service conditions under which it is intended to operate. Beyond this point the manufacturer's responsibility largely ceases and that of the utility begins. It is clearly the duty of the latter to provide a satisfactory quality of continuous service. Unless this spirit of co-operation does prevail both parties suffer in the end and furthermore the customer is not supplied with the class of service that he expects and is logically entitled to receive.

I am also of the opinion that a great many of our gas company members' practices could be co-ordinated to a much greater extent to the direct benefit of all concerned. As one example, I feel that much greater co-operation between the manufactured and natural gas industries could be accomplished. A broader exchange of experiences could be brought about to the advantage of both groups.

Political Attacks

Within the next few years we may expect numerous attacks from ill-advised politicians, seeking to promote their political aspirations at the expense of our business. In meeting such situations, naturally we must present a united front. I have perfect confidence in the fairness of the American public and I believe that if it is kept properly advised on the situation we have nothing to fear from such attacks providing we continue to follow the policy of maintaining the quality of our service above reproach. I am certain that this must be done and, furthermore, I regard it as being a continuing activity which, in the last analysis, will be the deciding factor in formulating desirable public relations.

I note with pleasure that you have appointed committees among your various groups to eliminate unfair trade practices, to effect a plan of cross-licensing patents, bring about the preparation of more accurate statistical information on gas appliance manufacturing activities and to offer general encouragement to the manufacturers of gas appliances. To me that program spells a new era in the gas appliances business.

*Before annual meeting of Manufacturers' Section, American Gas Association, Detroit, Mich., September.

CRUDE OIL PRICE CHANGES

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The Stoll Refining Co. lowered the price of Hart County crude 15 cents per barrel, effective September 16.

The Phillips Petroleum Co., through the Standish Oil Co., posted a reduction in its price for Oklahoma-Kansas crude on September 17. Its new price schedule conforms with the schedule adopted by all other large buyers on August 22, beginning at 46 cents for below 29 gravity crude, with 2 cents added for each degree up to 40 degrees and over, at 70 cents. The same company, on the same day, through the Philtex Oil Co., lowered its posted prices in Carson, Hutchinson and Gray Counties to conform with the other purchasers' posted prices which were made effective August 22. The Wilcox Oil & Gas Co. did likewise in Gray County, Texas, effective September 17.

ADVANCE OKLAHOMA NEUTRAL OIL PRICES

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of which have been considerably below the general market.

Oklahoma sellers were faced with quotations from East Texas and other Texas points as low as 2¾ cents, basis Group 3. With three or four exceptions Oklahoma refiners are in an excellent position in regard to gasoline sales. They have lowered their prices so as not to penalize their regular jobber trade but they have not forced material on the spot market.

The 60-62, 400 endpoint grade is available at a low of 3⅛ cents. While the demand is not active the reductions in the 390, 375 and 360 endpoint grades has not been as great as in U. S. Motor. These grades are offered in limited quantities and not in the hands of refiners who are accustomed to take the low of the market in spot sales. The lowest quotations reported in the 375 grade was 3½ cents and 3¾ cents for 350 and 360 endpoint. Naphtha prices were reduced along with U. S. Motor sales of the 50-52, 450 endpoint grade being made at 3 cents.

Natural Gasolines

Natural gasolines were holding to practically the same price levels as last week. This firmness in the face of the rapid decline of the refinery market reflects the limited supply more than any increase in demand. The continued shutdown of Oklahoma City and Seminole Fields is keeping about 500,000 gallons daily of natural gasoline from the market.

Several northern purchasers are buying in Texas rather than Oklahoma despite the difference in freight rates. In this connection, one large manufacturer which has a surplus of natural gasoline at its Houston refinery is reported to be making shipments to another refinery located at Chicago. Should the Oklahoma shutdown end it is believed that an easier natural gasoline market will result. The going market for all grades in Oklahoma the first of the week was 3⅞ or 4 cents. The prices were one-fourth cent lower in Texas.

Kerosene

The kerosene situation is somewhat mixed. Several refiners report an active demand which is taking all of their available supply. At the same time, other sellers are seeking more business and price concessions are being given. Sales of the 41-43 water white grade were being made to the trade as low as 1⅞ cents with most of the Oklahoma refiners quoting 2 and 2⅛ cents.

Those in touch with this market state that no material improvement is possible until the gasoline market stiffens and the tank wagon gasoline prices are advanced. In the consuming end, gasoline for tractor fuel is available tax free at prices which in many cases are less than the kerosene tank wagon schedules. Cases are cited in certain areas in which due to this situation kerosene tank wagon sales have dropped from 50 to 75 per cent when compared with last year.

Fuel Oil and Gas Oil

Prices on fuel oils were maintained although trading was light. The low cold test oils regardless of gravity appear strong. There have been inquiries in the market for flat prices over October in the low gravity fuel oils and also the high gravity furnace oils. Prices on fuels range from 20 to 45 cents per barrel depending on cold test and gravity.

One company offered 28-30 zero fuel oil at 40 cents and obtained orders on that basis. Very little gas oil is being offered. The U.G.I. gas oil and the higher cold test grades is quoted in Oklahoma at a low of 1⅛ cents, although buyers claim to be purchasing in other areas on a basis of 1 cent. The low cold test and low flash furnace oil material is scarce at a low of 1¼ cents.

Lubricants

Except for the advance in neutral oils previously explained there were no changes in the lubricating oil list. The advance of last week has not slowed up the demand for bright stocks, the low cold test grades being particularly active. Wax prices are unchanged.

FILE PLAN FOR WORLD CURTAILMENT OF OIL

(Continued from Page 20)

man Hill simply ventured the thought: "We will try."

At the Oklahoma City conference the representatives of large oil importing companies indicated their willingness to come into a plan for restricting oil importation for the next six months if they could do so in a way to avoid violation of the antitrust laws. They might do so singly but not by agreement. That is one of the difficulties to be overcome. Chairman Hill suggested after the conference with Secretary Lamont that cooperation by the large oil importing companies might lessen the insistence of the producing industry for a high import tariff.

Wirt Franklin's Opinion

Wirt Franklin declared after the meeting that each oil state is by legal methods prorating its oil production and there was no reason why imports should not be subject to similar mandatory proration. He has in no degree changed his mind about the necessity for a tariff on oil. He has never personally approved the embargo on oil but Congress at its next session will be appealed to by the Independent Petroleum Association to provide a tariff on oil imports.

The committee also called on the United States Tariff Commission and submitted statistics that the commission had requested. Chairman Thurman Hill made it clear to the commission that as they had determined $1.10 as the cost of producing oil in the Mid-Continent that should be the minimum price the oil men should obtain to conserve natural resources in the interest of the people at large. The production of oil, he stated, should be from 100,000 to 200,000 bbls. daily less than the demand so that the difference between the supply and demand for oil would be taken from storage.

Received by President

President Hoover received the committee at noon today and after hearing a brief recital of the difficulties of the oil producers wished them well in their efforts to re-establish the oil industry on a normal basis.

The committee, headed by Thurman Hill of the Public Service Commission of Kansas, told the President of their visit to Secretary Lamont and the United States Tariff Commission and said they were waiting on further information before making recommendations. They did not make any specific recommendations to the President.

In the committee calling on the President were Cullen F. Thomas and C. V. Terrell of Texas, Paul A. Walker of Oklahoma and William N. Davis, president of the Mid-Continent Oil and Gas Association.

Mitchell May Modify Opinion

The United States Tariff Commission is examining the facts of the oil industry after hearing the committee with a possibility of giving an entirely different slant to Attorney General Mitchell's opinion that the President is without authority to order an embargo on oil importation. It is stated that the attorney general himself has modified that opinion by saying the President had no such power "under present conditions." However, the committee is attempting to prove that these importations constitute unfair competition and that under the statutes such unfair competition empowers the President to place an embargo on oil importation.

Information is being assembled by the Commerce Department bearing on importation of oil, both crude and refined.

"If that information is of the kind we think it will be, we will state our case in Kansas language that will be very easy to understand," said Chairman Hill as he left the White House today. They expect to have those figures in a couple of days.

Importers to Meet

Before there will be any international conference on oil production there will be a meeting of the importing companies to see what they can do to promote restrictive measures. The Standard Oil Co. of New Jersey, the Shell and the Gulf companies are regarded as cordially in sympathy with some agreement that can be effective legally. If that does not entirely meet the needs, it is said the problem will be passed on to the American Petroleum Institute as a medium to intercede with the State Department to bring about a real international discussion and agreement among the oil producing nations looking toward a world proration of production of oil.

RESUMPTION OF TANKER SHIPMENTS OF GASOLINE

(Continued from Page 117)

shipments during the past week is due to the shutdown in Texas or just a normal gain. The Shell shipped two cargoes to its plant at Sewaren, N. J., during the past 10 days, but this is not out of the ordinary as the Shell has made similar periodic shipments for several months. The General Petroleum has been shipping to Socony, the Associated to Tide Water, and Standard to the Sun Oil Co. for some time, but this week Cities Service picked up a cargo of California gasoline and another Cities Service tanker, the Ohio, left the East Coast August 20 to load 90,000 bbls. of California gasoline for New York.

Depends on Eastern Prices

The extent and duration of gasoline shipments from California to the Atlantic Seaboard is dependent entirely upon the future price structure in the absorbing territory. California export prices showed a further weakening during the last week, U. S. Motor gasoline declining to a low of 3½ cents per gallon. On this basis California gasoline can be laid down on the Atlantic Seaboard for approximately 5 cents per gallon. Clean boats are available for charter at 45 cents per barrel and it is quite probable that this could be shaved to 42 cents on a time charter. The Richfield and Standard have several tankers laid up in California ports, but this fleet will be back in use as soon as California gasoline can be disposed of at a profit. Refined oil prices on the Pacific Coast were rather irregular during the last week due to a combination of circumstances but late developments indicate the possibility that more favorable conditions will prevail within the next few days.

Retail prices of gasoline broke badly early this week but subsequently strengthened somewhat, although many independent service stations continued over the week-end to sell at 12½ cents per gallon, including the gasoline tax of 3 cents per gallon. Major refiners lost considerable gallonage due to this weakening of prices but sat tight and maintained quotations at 16 cents per gallon in the hope that the irreconsilables would be back in line within a few days. The marketing situation reached a critical condition during the early part of the week and a general breakdown of prices was only averted by herculean efforts.

Considering Third Grade

Major refiners on the Pacific Coast are seriously considering the advisability of putting out a third grade gasoline to meet cut rate competition, but are reluctant to take this step if there is any hope of effecting stabilization of prices. Under the existing gentlemen's agreement the seven major companies are to maintain a price of 16 cents per gallon for gasoline while independent marketers are expected to adhere to 14 cents, tax paid. The Cosmopolitan Oil Co., a stabilizing unit, and another group of independent refiners have been endeavoring to purchase excess gasoline of smaller refiners at 6 cents per gallon and while one would expect this quotation to establish the minimum truck and trailer price such has not been the case. As a matter of fact there is a considerable quantity of motor fuel being sold below the nominal price of 6 cents per gallon cash on the barrel head with the result that retail quotations have shown a wide fluctuation. Two stations in Long Beach have been selling gasoline for 10 cents per gallon, tax paid, thereby definitely indicating the inability of stabilizing units to pick up surplus production at 6 cents.

Another group of independent refiners filed articles of incorporation at Sacramento this week and should begin functioning shortly. This group will be incorporated as "Consolidated Independents" and will market gasoline under the trade name of "Eureka."

RICHFIELD SELLING THIRD GRADE GASOLINE

(Continued from Page 117)

third pump or reduce prices on all grades, as the Richfield's Blue Flash will undoubtedly cut into the sale of other marketers.

It appears quite probable that the future trend of events will be determined within the next two weeks. The seriousness of the situation confronting the California oil industry lies in the fact that it may spell ruination to many producers and likewise cause serious financial losses to refiners. It is unnecessary to say that crude oil prices will sympathetically reflect any reduction in refined oil prices and may ultimately jeopardize the existing curtailment program. It might not be amiss to mention, however, that the constructive element will make a determined effort to prevent an utter collapse and in this movement will have the sympathetic support of the state administration. As a matter of fact, Governor Rolph is seriously considering the advisability of calling a special session of the California legislature for consideration of several important problems, one of which concerns the oil industry. It is logical to assume that if crude and refined oil prices break remedial legislation will be passed with an emergency clause attached. It is interesting to note in this connection that a proposal has already been made to increase the present 3-cent gasoline tax and to divert the additional revenue to an unemployment fund.

Late Fields

(Continued from Page 30)

21, the total production at 7 a. m. was 947 bbls. from six wells. On September 22, at 7 a. m. the production was 18,872 bbls. of oil from 11 wells. The large production was due to new wells being completed and some of the other wells producing the balance of their eight-hour initial gauges.

KANSAS

In the Ritz-Canton area operators who have been drilling into the pay horizons with standard tools have decided to abandon the custom and drill the wells into the pay horizon with rotary tools.

Olsen Drilling Co.'s No. 4 Koehn, SW cor. NE SW Section 36-19-1w, in the Ritz-Canton Field of McPherson County, found the top of the chat at 2,921 feet and was preparing to drill into the horizon.

The only test drilling in the Schurr Pool, in Rice County, is Slick, Pryor & Lockhart's No. 3 Schurr, NW cor. NE SW Section 21-20-10w. It was preparing to spud on last reports.

Continental Oil Co.'s No. 1 Black, in Section 16-25-1, in the Goodrich Pool, in Sedgwick County, swabbed 257 bbls. of oil in 20 hours from the deep pay horizon found from 3,335-37 feet. The owners planned to drill the well deeper but when the bit encountered a hard formation the tools were withdrawn and swabbing continued.

Harris and Haun's No. 1 Esau, NE cor. SE Section 12-22-4w, in the northeastern part of Reno County, was fishing at 2,350 feet and expecting to reach a casing point in a few feet. The test is about 7 miles southwest of the Voshell Pool.

In the Welch Pool, in Rice County, J. Robertson's No. 2 Rainey, NE cor. SE SW Section 3-21-6w, was waiting for a supply of water before starting to spud. Gano and Liggett's No. 1 Brown, NE cor. SW Section 12-21-6w, was drilling at 1,100 feet. Rogers and Carpenter's No. 2 Rainey, SW cor. NW SE Section 3-21-6w, was preparing to spud.

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 115)

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude Produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 20, 1931

(All gravities above these quoted take highest price for that field)

Gravity °A.P.I.		Signal Hill	Alamitos Heights, Seal Beach	Huntington Beach	Athens, Rosecrans, Domingues	Torrance	Santa Fe Springs	Playa Del Rey*	E. Coyote, Richfield	Montebello	Santa Paula	Orcutt	Coalinga	Lost Hills	McKittrick, Kern River, Sunset-Midway, Elk Hills, Buena Vista Hills	Gravity °A.P.I.
11-13.9	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	$.50	11-13.9
14-14.9	.....	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	.....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	.....	.65	.65	.65	....	.65	....	....	.65	.66	.65	.55	.55	.55	.55	16-16.9
17-17.9	.....	.65	.65	.65	....	.65	....	....	.65	.66	.65	.55	.55	.55	.55	17-17.9
18-18.9	.....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	.....	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	.....	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	.....	.65	.65	.65	....	.65	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	.....	.65	.65	.65	....	.66	....	.67	.67	.65	.65	.59	.55	.59	.56	22-22.9
23-23.9	.....	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	.....	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.63	.55	.62	.61	24-24.9
25-25.9	.....	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	.....	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	.....	.75	.75	.75	.75	....	.68	....	.74	....	.72	....	....	.67	.68	27-27.9
28-28.9	.....	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	.....	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	.....	.81	....	....	.81	....	.75	....	....	....	.78	....	....	.72	.76	30-30.9
31-31.9	.....	....	....	....	.83	....	.78	....	....	....	....	....	....	....	....	31-31.9
32-32.9	.....	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	.....	....	....	....	.87	....	.83	....	....	....	....	....	....	....	....	33-33.9
34-34.9	.....	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

*Subject to a gathering charge of 5 cents per barrel.

What is the outlook for OIL SHARES?

The Pacific Coast Edition of THE WALL STREET JOURNAL will shortly inaugurate a series of articles dealing exhaustively with all phases of the petroleum industry. The national situation will be discussed with particular attention given to California and Pacific Coast activities.

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HOUSE COOLING BY GAS A.G.A. CONVENTION TOPIC

House cooling by gas, and summer air conditioning, promise to be among the most interesting topics of discussion during the thirteenth annual convention of the American Gas Association at Atlantic City, N. J., October 12-16, according to announcement made by Alexander Forward, managing director.

Extensive and exhaustive research by the association, which culminated in successful field tests this past summer, have begun to bear fruit in a definite way.

N. T. Sellman of the Consolidated Gas Co. of New York will submit a report dealing with housecooling and air conditioning.

Sir Francis Goodenough, C.B.E., of London, executive chairman of the British Commercial Gas Association, will discuss the growing significance and dignity of commerce throughout the world, pointing out how it is coupled with adequate education for salesmanship. Sir Francis Goodenough is chairman of the British government committee on education of salesmanship, and his committee recently completed a three-year study of that subject in Great Britain.

J. Herbert Canning, O.B.E., of Newport, Monmouthshire, president of the Institution of Gas Engineers, will bring to the American Gas Association convention a message from the industry of Great Britain. He is one of the outstanding engineers of the gas industry in England.

Dr. Zay Jefferies of Cleveland, director of research for the Aluminum Corp. of America, will discuss the advancement of the industry through science.

Judge H. O. Caster, general counsel, Henry L. Doherty & Co., New York, is scheduled to speak on the development of natural gas.

Col. O. H. Fogg, vice president of the Consolidated Gas Co. of New York, a former president of the American Gas Association, will talk on dealer co-operation.

Morse DellPlain, president of the Northern Indiana Public Service Co., Hammond, Ind., will tell about sales planning.

Particular interest is expected to center in the reports which will be submitted by F. L. Daily of Chicago, chairman of the committee on rate fundamentals, and F. A. Newton of New York, chairman of the rate structure committee.

TANK WAGON CHANGES

(Continued from Page 116)

established a 3-cent discount to dealers off the tank wagon effective September 11.

Atlantic Refining Co. reduced the gasoline tank wagon and station prices 0.6 cent in Providence, R. I., to 12.1 and 13.1 cents September 10.

Standard Oil Co. of Louisiana reduced the gasoline tank wagon and station prices in New Orleans, La., to 14.5 cents each on September 14. On September 12 these prices were reduced to 19 cents each in Bristol, Tenn. On September 15 the tank wagon price in Bristol was reduced to 18 cents.

Standard Oil Co. of New Jersey reduced the gasoline tank wagon and station prices in Charlotte, N. C., to 17.5 cents each on September 15.

Standard Oil Co. of Kentucky advanced the gasoline tank wagon and station prices throughout the greater portion of its territory September 4. At that time the prices posted in Birmingham, Ala., were 18 cents tank wagon and station. On September 12 these were reduced to 17 cents. In Lexington, Ky., these were posted at 18 cents each September 4 and on September 9 the station price was advanced to 19 cents. In Savannah, Ga., these prices were posted at 19 cents September 4 and on September 16 were reduced to 17 cents each. In Tampa, Fla., the prices were posted at 18 cents each and on September 8 were reduced to 16 cents.

Standard Oil Co. of Indiana reduced the gasoline station price in Des Moines, Iowa, to 13.4 cents September 19. On September 21 the station price was reduced to 12.5 cents in Davenport, Iowa.

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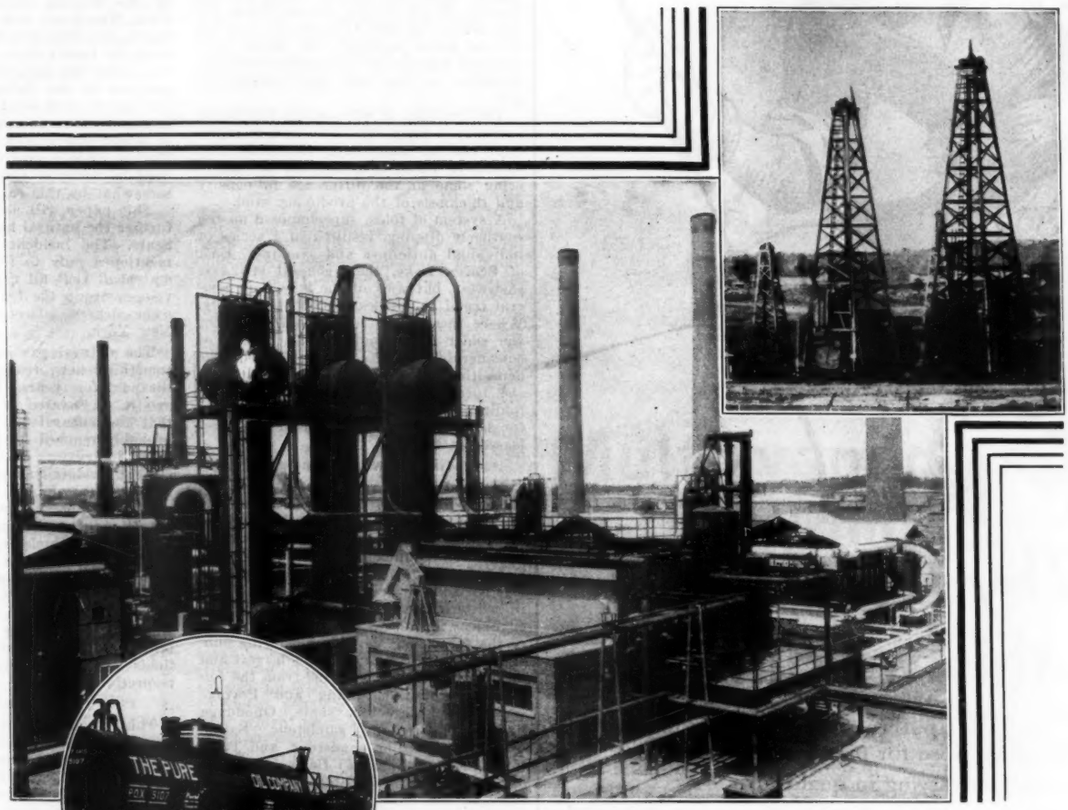
Gas welding on Humble Oil & Refining Co.'s gas line being built from the company's plant at Kilgore to plant near London, Tex. Both gasoline plants are under construction.



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ROEBLING WELDING WIRE

N. Y. GAS PRODUCTION GREATEST IN HISTORY

(Continued from Page 58)

deeply at the Pennsylvania line. For instance, the Oriskany sand, outcropping at Oriskany Falls, is nearly 2,200 feet deep in Schuyler County and approximately 2,000 feet deeper where encountered in Tioga County, Pennsylvania. On the borders of the Adirondacks and for several miles outward, the lower sedimentary deposits do not attain sufficient thickness to store any large supplies of gas.

The tendency of wave action and ocean currents to form sand bars and to segregate coarser and finer materials also should be taken into account in considering some of the difference in density and thickness of the producing sand.

A system of folds, superimposed on the southerly dipping, resulted in a series of individual anticlines and synclines. East of Seneca Lake, their general strike is east-west, but west of the lake their general trend is northeasterly-southwesterly. Where these more recent folds intersect the older north-south folds, domes of considerable magnitude were formed. The deposition of organic matter resulted in the formation of source beds, and the folding provided the necessary structures for holding the gas in storage until released by the drill.

Gas Showings General

Natural gas has been found within these sedimentary formations from the Potsdam sandstone of the Cambrian to the Chemung of the Upper Devonian, and it is not unusual to encounter some flow of gas at one or more of the geological horizons in drilling almost anywhere in western New York. Commercial occurrences, however, are limited to a few of the formations capable of storing substantial quantities of gas. The largest and more permanent flows come from the following strata: Chemung and Portage sandstones, Marcellus shale, Onondaga limestone, Oriskany sandstone, Salina water lime, Medina sandstone, and Trenton limestone. Some 25 fields have been discovered within the State, but many of these in the passing of time have been drained of their principal supply.

The earlier drilling along the shore belt of Lake Erie was relatively shallow and associated with the seepage of gas which had long been a natural phenomena of the region. The opening of the oil and gas region in western Pennsylvania, following the drilling of the Drake well of 1859, led within a few years to the developments in Cattaraugus, Allegany, and the western section of Steuben Counties, an area which comprises the southwestern district lying next to the Pennsylvania border and which forms geologically and geographically, a northern extension of the Pennsylvania fields. Successful developments in this region were followed by the extension of exploration into the adjoining counties.

During these early years of exploration, the drillers in New York and adjoining states were content with a geologic range which did not extend below the Middle Devonian, thus including only the more recently formed strata. Largely because the known production had been developed within the newer strata, the older formations were condemned. Knowledge was based on experience, just as the earlier Pennsylvania drillers believed that oil could be found only by drilling along creek bottoms, thus condemning the adjoining hillsides.

The discovery of oil and gas at Findlay, in northwestern Ohio, in 1884 in the older Trenton limestone, which came as a surprise to both the scientific and practical men of the industry, not only overthrew the earlier generalization but carried the range of potential productive horizons down several thousands of feet. Almost the entire territory hitherto condemned was transferred into zones worthy of exploration. It is difficult to grasp from the pages of history nearly a half century old even an approximate conception of the excitement which followed the Findlay discovery, but it is recorded that many villages, which could not even afford sidewalks, somehow managed to gather together enough money to drill a community gas well.

Renewed Activity in New York

The excitement spread across state borders and its influence was recorded in renewed activity in New York. Discoveries in Erie County and in the area around the east end of Lake Ontario followed. Among these wells were those of the Buffalo district and the Zoar Field. The latter area is of particular interest, not only because of the Kerr well with its initial flow of some 30,000,000 feet daily, but because the gas horizon is referred to the Salina water lime and the lower part of the Onondaga limestone, or the same general horizon as that to which the present production in the Tyrone Field is credited. The decision to drill in Schuyler County was influenced somewhat by this earlier discovery.

This paper will not attempt to review further the natural history of the Empire State. The incidents offered have been mentioned only to illustrate the general statement that all major natural gas developments in the United States have, in some degree, affected developments in New York.

The natural gas industry of today is something new, really a development of the past few years. Less than 10 years ago it was stated in official documents that the natural gas industry had then probably reached its peak. At that time the industry was centered in the eastern states; production had shown no upward trend for a number of years; and the principal interest appeared to be the conservation of a waning supply. Some of the fields which now are principal sources of gas supply, such as the Monroe Field in Louisiana and the Amarillo area in the Texas Panhandle, were then known, but only a vivid imagination would have dared to conceive the possibility of transporting gas from these fields very far beyond the borders of their respective states.

Tyrone Field

This situation continued until only a few years ago. Then, pipe lines were laid from the Monroe-Richland area of Louisiana to New Orleans, St. Louis and numerous communities in the southeastern states; from fields in the Texas Panhandle and southwestern Kansas to Denver, Chicago and the Indiana border; from the Kettleman Hills to the San Francisco Bay area; and local service in the Rocky Mountain states was increased through the discovery of a number of fields. All of this led to a sort of national enthusiasm for natural gas which, like the early discovery of gas in Pennsylvania and the Findlay discovery in Ohio, had some influence on the natural gas industry of New York. The overproduction of crude oil, with its attendant lowered price scale, also was a contributing factor. The discovery of the Tyrone Field resulted largely from the deliberate realization that drilling for gas, if successful, held more promise than would a corresponding amount of drilling for oil at the time, particularly as it appeared unlikely that there would be any difficulty in finding markets for gas, whereas oil markets, at best, were problematical. The discovery was not accidental. It marked the culmination of months of patient field work, of careful mapping and the study of all available records of earlier experience.

The Tyrone gas field, located principally in the township of that name in Schuyler County but extending also into Wayne Township in Steuben County and Barrington Township in Yates County, was discovered on February 26, 1930, with the completion of the No. 1 Pulver well, at a depth of 2,075 feet, initial open flow of 5,750,000 feet and a rock pressure of 730 pounds. Two months later a second well, with initial open flow of 10,000,000 feet, was completed, and five weeks thereafter the third well, with slightly more than 6,000,000 feet initial open flow, was reported. The field, named after the town of Tyrone in the northwest corner of Schuyler County, lies midway between Seneca and Keuka Lakes. The field also is referred to as the Wayne-Dundee and a dry hole near Altay, south of the field, when drilled, resulted in the designation

of that particular section as the Altay Field.

Wayne Field

To the west of Tyrone is Wayne Township, in Steuben County, and to the north is Barrington Township, in Yates County. Drilling extended from Tyrone into the two adjacent townships. On February 2, 1931, production was developed in Wayne with the completion of the No. 1 Bigelow, at a depth of 1,747 feet, and an initial open flow of 8,900,000 feet. On May 7, 1931, Barrington was included when a well on the Faucett farm was completed at a depth of 1,951 feet, with an initial open flow of 4,600,000 feet.

On August 1, 1931, three-fourths of the initial open flow capacity of the area was credited to 50 wells in Tyrone Township; 11 wells in the Wayne area were listed as producers, and two producers had been completed in Barrington Township. For the area as a whole, on the date mentioned, 63 wells had been completed as producers; 15 wells had either encountered water, were dry, or abandoned; 12 wells were drilling; 2 were being located; and operations on one had been suspended.

The acreage included within the producing limits is reported as slightly under 6,500 acres, resulting in an average of approximately 100 acres per producing well. Much of the drilling, however, has been concentrated in a relatively small portion of the field lying immediately north of Little Lake in the westward extension. Most of the territory included within the producing limits was under lease when the discovery well was completed. At the time data were assembled for this paper, 34 wells had been completed as producers in the limited area which originally was not under lease, while the remaining 29 producers were rather widely separated over the major portion of the field.

Ultimate Production

Such differences in spacing constitute an important factor in the ultimate production per well, as wells with drainage area reduced through close drilling obviously will not produce in total quantity equal to wells which have been spaced in accordance with a regular drilling program providing ample drainage zones for each well. Stated in another way, the total quantity of gas within the producing limits is limited to the amount which may be stored in the reservoir rock under the existing pressure. Active drilling does not increase the quantity of gas available within the structure, and drilling above the technical and economic limits will reduce the ultimate recovery per well within the competitive zone.

Neither the number of producing wells nor the aggregate initial open flow is a guide to the reserves or life of a field. The gas content of a structure is determined by its storage capacity and the pressure at which the gas is held. The number of producing wells and the aggregate initial open flow capacity are indicators of the rate at which the gas may be extracted. The life of a field, consequently, is determined through dividing the available supply by the rate of flow. For example, the gas resources of the Tyrone Field have been estimated at from 12,000,000,000 to 18,000,000,000 feet, or 2,000,000 to 3,000,000 feet per acre, and could not be expected to produce gas at the rate of its aggregate initial open flow capacity for a period much longer than a few months; and continued production over a 10-year period would necessitate limiting the daily rate of production to a very low percentage of its open flow capacity.

Production in the Tyrone Field is from the Oriskany sandstone, encountered in the discovery well at a depth of 2,075 feet and, in subsequent drilling, at depths from 1,674 to 2,177 feet, according to the location of the drilling and the surface elevation. The gas from the Oriskany in the main part, or Dundee section, of the Tyrone Field contains some hydrogen sulphide, removed before the gas is utilized, while the gas in the westward extension is "sweet" and requires no treatment, indicating that the producing zone may not be continuous.

Oriskany Formation

The Oriskany is a thin sandstone intermittently separating the Salina waterlimes at the top of the Silurian, and the Onondaga limestone at the bottom of the Devonian Age, or sometimes separated from the Silurian by a few feet of Helderberg limestone. It is irregular, both as to thickness and density. Along its outcrop, west from Onondaga, it appears intermittently, disappearing completely at times. Torrey credits the formation of the Oriskany to the deposition of the sandy material washed down during the elevation of the eastern land mass. The region was then occupied by a sea which was being pushed to the west by the rising land to the east, and what is now known as the Oriskany sandstone was then the sand of its beaches and dunes.

Sand on the sea or ocean beaches is not laid down uniformly. Ocean currents may wash it completely away from certain places and deposit it with greater thickness at other localities and the wind will similarly rearrange the sands above the water level. There will be a separation between the fine and coarse material. All of these variations, seemingly, are present with the Oriskany sand and more than duplicate the ordinary hazards of drilling. It is not sufficient, under such circumstances, to locate and drill an adequate structure, but the drill must penetrate a zone where the sand is present with sufficient thickness and porosity to serve as a storage place for commercial quantities of gas. Structures may be mapped from the surface or located by geophysical methods, but the technicians of the industry have not yet developed a method of determining, from the surface, the porosity of sands buried some thousands of feet below the surface.

Torrey says that the Oriskany is probably the least continuous of any of the Devonian rocks, and at many localities its position in the geological section can only be inferred. At the type locality it cannot be followed for any great distance and west of this place typical outcrops are rare. The Oriskany, as developed in central and western New York, he states, probably represents submarine bars which were not subject to swift ocean currents or which mark the shore line of the sea during a temporary suspension in the advance of the water. Elsewhere, or in those places where the Oriskany is not evident, the transgression of the sea was seemingly so rapid that accumulations of sand did not occur; or, if formed, they were removed and washed away by subsequent changes in the position and outlines of the sea. He therefore concludes that careful studies of Oriskany sedimentation are as essential to the successful location of new gas fields as is the mapping of the anticlinal structure.

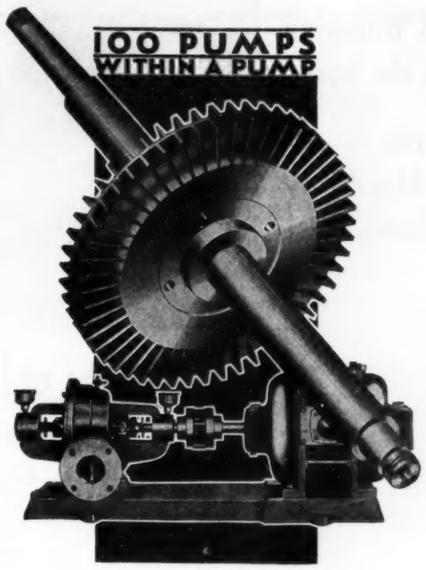
Present Production

Natural gas is not produced in New York in quantities sufficient to supply the demand, and quantities in excess of local production have during recent years been received from Pennsylvania. During 1930, however, production within the states was slightly greater than the amount transported from Pennsylvania. Natural gas production in New York increased from 8,387,000,000 feet in 1929 to 9,624,000,000 feet in 1930, the highest production recorded for the State during any year. The quantity received from Pennsylvania dropped from 10,011,000,000 feet in 1929 to 9,478,000,000 feet during 1930. Consumption increased from 18,192,000,000 feet in 1929 to 18,991,000,000 feet during the past year, not including the relatively small quantities exported to Canada. Approximately 90 per cent of the consumption is for domestic purposes, field use and industrial distribution being relatively low.

Depending upon natural gas from Pennsylvania for approximately half of its supply, New York has a direct interest in the recent developments of the adjoining state, especially as the major portion of the distribution from the new Farmington Field probably will serve new consuming areas within New York boundaries.

Farmington Field

The Oriskany also is the producing sand of the Farmington Field on the Sabinsville anticline in Tioga County, Pennsylvania. Remembering the dip to the south occasioned by the shelving sea bottom previously mentioned, the Oris-



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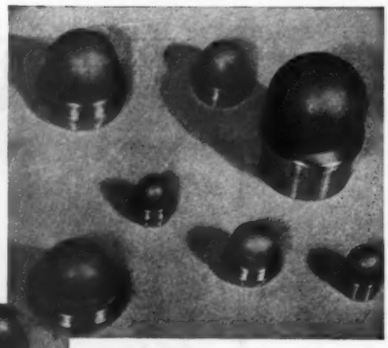

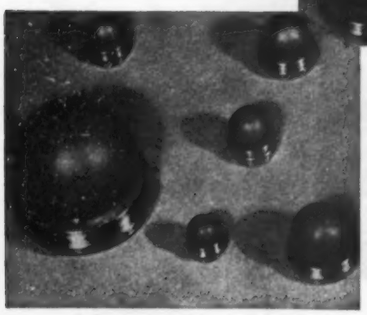

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kany is, as expected, some 2,000 feet deeper in the Pennsylvania Field than in the Tyrone region, and the rock pressure, increasing normally with depth, is in the neighborhood of 1,600 pounds. The Oriskany in the Farmington Field is credited with a thickness of approximately 50 feet, as compared with from 15 to 20 feet in the New York area. The greater thickness of sand and the higher rock pressure makes possible the storage of considerably more gas per acre of producing territory in the Farmington than in the Tyrone Field, although this may be offset slightly by a narrow difference in porosity.

The Farmington Field was discovered in September, 1930, with the completion of the No. 1 Palmer, with initial open flow capacity estimated up to 20,000,000 feet. This discovery was followed by the Ben Meeker well, the open flow of which was estimated initially at 80,000,000 feet and, more recently, by the M. P. Close well, with initial open flow estimated at 70,000,000 feet. At the middle of August, 16 producing wells had been completed. At the same time, 22 dry holes had been drilled.

The excess of dry holes over producers in the Farmington Field has resulted partially from the fact that much of the drilling was exploratory, with the view of determining the field limits, and also to an important extent, from differences in the density of the sand within the structure. Dry holes have been drilled on the structure within a relatively short distance of producing wells, finding the Oriskany sand extremely dense. It appears that the structure is complicated further by the presence of a fault line within the field.

The Oriskany sand does not appear to be one of high porosity. Tests made by Dr. Charles R. Fettke, professor of geology, Carnegie Institute of Technology, of nine samples taken from three producing wells showed pore spaces ranging from 4 to 10.4 per cent, the average of the nine samples being 6.6 per cent. Doctor Fettke states that it hardly seems possible that a sand of as low porosity as that of the fragments tested could yield such large volume of gas as flowed from the wells at the time they were drilled in and suggests the possibility that secondary cavities may have been developed in the sandstone by fracturing along the anticlinal axis or that the sandstone in places may be intersected by shear or fault zones and that the secondary openings developed in it in this manner afford the chief reservoir for the gas rather than the original pore spaces between the sand grains themselves.

Fir Tree Point Anticline

The Fir Tree Point anticline, adjacent to which the Tyrone Field has been developed, and the Sabinsville anticline of the Tioga region are but two of a number of anticlines in New York and Pennsylvania along which possible producing areas have been mapped. The Wellsboro anticline, immediately south of the Sabinsville, has received considerable attention, at least seven wells having been located at various points in its vicinity. It is reported that test wells also have been located along several other anticlines and synclines in the general region of the recent production. None of this exploratory drilling has yet been successful in locating additional producing areas, but, remembering what has been said of the erratic nature of the Oriskany sand, it cannot be said that these failures to achieve production definitely condemn all of the regions which have been partially tested.

Several structures, located and leased in the course of the field surveys which preceded or accompanies the development of the Tyrone and Farmington Fields, have not yet been tested. The general thinning of the sands toward the east and the presence of the anthracite region to the south are factors which make uncertain the prospect of favorable development in those directions. It is interesting to note that one well in the Tioga region, which was dry in penetrating the Oriskany, has been continued downward with the purpose of exploring the possibilities of the Medina, nearly 3,000 feet deeper in the geological column. According to recent report, this well had exceeded a depth of 7,000 feet. The Medina also is the reported objective of renewed drilling in Chautauqua County. The Trenton limestone also is as yet untapped by wells in this region.

Recent Discoveries

The recent discoveries in New York and Pennsylvania have attracted considerable interest because, in respect to previous performance in the eastern fields, their records have been spectacular. The development of any new gas reserves in these oldest producing territories is of different economic aspect than the discovery of equal or larger production in more distant regions. Viewed solely as to the field value of the gas, discoveries in New York are, for fields of comparable size, considerably more important than discoveries in the Southwest. An average field value of 33.2 cents per 1,000 feet was reported to the Bureau of Mines for New York in 1929 and 27.6 cents for Pennsylvania as compared with 3.3 cents for Texas, 6.6 cents for Oklahoma and a national average of 8.2 cents. Values for 1930 are comparable on a similar basis. The high field value in New York and Pennsylvania results partially from the more direct relationship existing between the production of gas and its consumption and a higher cost of production, but it also results from the economic advantage of location—the proximity of the eastern production to consuming areas, as compared with gas which would have to be piped from more distant sources.

With the development of large reserves in Texas and Kansas, the range of natural gas distribution has been extended until even the movement of Texas gas by pipe line to the Middle and North Atlantic regions has been suggested. Lines extending eastward from the southwest fields have approached the older lines of the Appalachian region. Lines now reported under construction or contemplation from the Farmington Field will extend southward in the direction of the older systems and, in the opposite direction across the New York border. Should ample reserves be developed, further extension in a northeasterly direction might be possible. There is noted, consequently, a tendency to merge the gas resources of the Appalachian area with those of the Southwest in supplying the present and potential markets for natural gas in the northeastern United States. The production developed in Tioga and Tyrone regions undoubtedly has contributed to this future possibility by permitting the immediate entrance of natural gas into certain districts which later might have come within the scope of the extended distribution from the Southwest.

The references to the geology of these regions have been abstracted from publications of the Pennsylvania Topographic and Geologic Survey and the New York State Museum and from the two articles by Mr. Torrey previously mentioned. Operators in both fields contributed freely all of the operating data necessary for the purposes of the paper. This assistance is acknowledged gratefully.

Summary of Situation

In summary of the situation, then, it may be said that the natural gas industry of New York State, 110 years old, recorded its greatest production during the past year. The recent discoveries are of considerable economic importance, but these developments should not be taken to indicate that reserves similar in size to those of the Southwest have been developed or that natural gas will be available for consumption at the low rates prevalent in the fields of the southwestern states. It should not be assumed that similar fields may be discovered easily in other portions of the two states or that the ability to drill a single well will be awarded. Enough has been said of the difficulties encountered in recent developments to indicate that considerable patience, energy and skill will be needed in the search for new fields. Development work undoubtedly will be continued and structures which have been located probably will be tested. At present it does not appear probable that a supply will be developed within the State in sufficient quantity to render New York independent of natural gas from outside sources.

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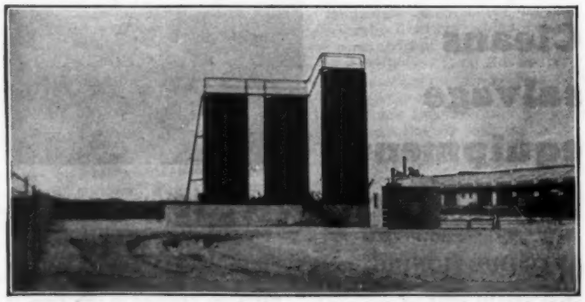

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Summary of Operations in All Fields for August, 1931

Summary of All Wells Completed

	Comp.	Prod.	Dry	Gas
Eastern	89	188	21	41
Central Ohio	28	112	6	16
Lima	13	10	0	12
Indiana	11	5	7	3
Michigan	8	2,720	2	3
Kentucky	15	203	7	4
Illinois	2	20	1	0
Kansas	49	23,913	7	30
Oklahoma	39	50,877	10	10
North Central Texas	61	1,131	43	0
East. Central and East Texas	283	61,510	11	0
East Texas gas field	4	0	4	0
West Texas	32	3,828	16	0
Texas Panhandle	8	180	2	4
Gulf Coast	39	14,960	21	0
Southwest Texas	36	592	24	3
North Louisiana	14	1,787	5	6
Arkansas	0	0	0	0
Mississippi	5	0	3	2
Montana	8	420	0	5
Wyoming	11	1,325	2	3
Colorado	0	0	0	0
New Mexico	5	0	2	3
Utah	0	0	0	0
Total August	760	163,781	194	135
Total July	986	256,240	245	160
Difference	226	92,459	51	15

Rigs and Wells Drilling

	Rigs	Drlg.	Ttl.
Eastern	42	152	194
Central Ohio	31	100	131
Lima	4	15	19
Indiana	7	50	57
Michigan	63	100	163
Kentucky	9	89	98
Tennessee	0	14	14
Illinois	2	18	20
Missouri	0	1	1
Kansas	30	95	125
Oklahoma	42	232	274
North Central Texas	20	79	99
East Cent. and East Texas	243	437	680
East Texas gas field	11	40	51
West Texas	12	65	77
Texas Panhandle	14	25	39
Gulf Coast	9	64	73
Southwest Texas	8	92	100
North Louisiana	17	53	70
Arkansas	7	27	34
Mississippi	8	15	23
Alabama	2	3	5
Montana	13	72	85
Wyoming	10	81	91
Colorado	7	83	90
New Mexico	3	47	50
Utah	1	19	20
Total August	615	2,068	2,683
Total July	495	2,199	2,694
Difference	120	131	11

Note—In the following report the Section, Township and Range are given first; then the farm, the owner, the serial number of the well and the initial production of the well. In lines where the Section, Township and Range are missing the wells are located in the Sections, Townships and Ranges which appear next above in the report.

OKLAHOMA FIELDS

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Alfalfa	0	2	2
Atoka	2	1	3
Beckham	1	4	5
Blaine	0	1	1
Bryan	0	1	1
Caddo	0	4	4
Canadian	0	1	1
Coal	0	1	1
Carter	1	5	6
Cleveland	1	0	1
Comanche	0	1	1
Creek	3	28	31
Garfield	2	2	4
Garvin	0	1	1
Grady	1	0	1
Greer	0	2	2
Grant	1	1	2
Hughes	0	1	1
Haskell	0	3	3
Jefferson	0	1	1
Kay	0	4	4
Kiowa	0	3	3
Latimer	1	1	2
Le Flore	0	1	1
Lincoln	0	1	1
Logan	0	3	3
Love	0	1	1
McIntosh	0	2	2
Marshall	0	6	6
Muskogee	1	11	12
Noble	1	6	7
Okfuskee	1	6	7
Oklahoma	11	61	72
Okmulgee	1	7	8
Osage	2	11	13
Pawnee	1	14	15
Payne	0	2	2
Pittsburg	0	3	3
Pontotoc	0	3	3
Pottawatomie	3	0	3
Rogers	0	1	1
Roger Mills	0	2	2
Seminole	2	3	5
Stephens	3	4	7
Tulsa	1	8	9
Washita	0	2	2
Wagoner	2	6	8
Total August	42	222	274
Total July	55	240	295
Difference	13	8	21

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Atoka	1	0	1	0
Caddo	1	0	1	0
Carter	2	890	0	0
Coal	1	0	1	0
Grady	1	0	1	0
Haskell	1	0	1	0
Hughes	1	0	0	1
Muskogee	9	0	4	5
Okfuskee	1	0	1	0
Okmulgee	2	5	0	1
Oklahoma	13	49,429	0	0
Pittsburg	2	0	0	2
Pontotoc	2	294	0	0
Seminole	1	259	0	0
Wagoner	1	0	0	1
Total August	39	50,877	10	10
Total July	79	124,179	32	14
Difference	40	73,302	22	4

WELLS COMPLETED

ATOKA COUNTY

6-4s-11 Howard, L. E. Stewart et al 1. dry

Wells completed 1
Dry 1

CADDO COUNTY

10-5-9w Estes, Magnolia Pet. Co. 2 ... dry

Wells completed 1
Dry 1

CARTER COUNTY

19-1s-2w Ratliff, Carter Oil Co. et al 1 217
24-1s-3w Dickenson, Magnolia Pet. Co. 5 673

Wells completed 2
Production 890

COAL COUNTY

10-2-8 Miller, E. M. Whitney et al 1 .. dry

Wells completed 1
Dry 1

GRADY COUNTY

23-4-5w Milner, Badgett & Cooper 2 .. dry

Wells completed 1
Dry 1

HASKELL COUNTY

9-7-20 Perral, Sooner O. & G. Co. 1 .. dry

Wells completed 1
Dry 1

HUGHES COUNTY

11-7-8 Schramm, Boettecher et al 1 .. gas

Wells completed 1
Gas 1
Gas production 41,000,000

MUSKOGEE COUNTY

35-16-15 Barnett, P. Boyle et al 2 ... gas
18-13-16 Brown, G. D. Robinson 2 .... gas
28-16-15 Hawkins, John Aggas 6 ..... gas
11-14-18 Stidham, J. G. Graham 5 ... dry
33-16-15 Daniels, Mack Drlg. Co. 1 .... dry
8-15-18 M. Steadham, J. L. Haner et al 6 ..... gas
15-14-16 Cherry, Bryan Pet. 1-A ..... gas
20-14-17 L. Green, E. Price 1 ..... dry
26-10-19 Long, H. E. Dowd 1 ..... dry

Wells completed 9
Dry 4
Gas 5
Gas production 13,225,700

OKFUSKEE COUNTY

5-11-12 Harjo, Betty Ann Oil Co. 1-A. dry

Wells completed 1
Dry 1

OKMULGEE COUNTY

31-15-13 Pigeon, D. M. Logan 2 ..... gas
9-15-13 E. Brown, Kirkland & Son ½ .. 5

Wells completed 2
Production 5
Gas 1
Gas production 5,000,000

OKLAHOMA COUNTY

34-12-3w Stout-Gibbons, Morgan Pet. Co. 1 ..... [4]4257
Carey, Westgate Oil Co. 2 .. [4]6226
3-11-3w Classen-Edwards, T. B. Slick estate 3 ..... [2]3528
Classen-Edwards, T. B. Slick estate 4 ..... [2]3008
11-11-3w Ferndale Community, I. T. I. O. Co. 4 467
14-11-3w Pasadena Heights, I. T. I. O. Co. 6 ..... [2]452
Ashley, Scott et al 1 957
15-11-3w Lawrence Place, I. T. I. O. Co. 4 ..... [5]5998
34-12-3w M. K. & T., I. T. I. O. Co. et al 1-B ..... [5]5539
3-11-3w Reserve, Phillips Pet. 1 .. [2]7181
10-11-3w Gibson, Skelly Oil Co. 1 .... [4]2670
15-11-3w Ivanhoe, I. T. I. O. Co. et al 3 ..... [2]2467
10-11-3w Deterding, Shaffer et al 1 ... [6]6679

Wells completed 12
Production 49,429

[1]Three hours. [2]Four hours. [3]Two hours. [4]One and one-half hours. [5]Four hours. [6]Ten hours.

PITTSBURG COUNTY

8-7-18 Lovier, Choctaw Gas Co. 2 .... gas
5-8-16 Belt, J. E. Weible 1 ..... gas

Wells completed 2
Gas 2
Gas production 15,000,000

PONTOTOC COUNTY

24-5-4 Newby, G. J. Lynch et al 1 30
36-5-5 Roberts, Stanolind O. & G. 2 .. 264

Wells completed 2
Production 294

SEMINOLE COUNTY

29-6-6 Billington, Magnolia Pet. Co. 3 259

Wells completed 1
Production 259

WAGONER COUNTY

7-15-17 S. Kernal, C. D. Bradley 1 ... gas

Wells completed 1
Gas production 8,277,000
Gas 1

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Chase	1	0	0	1
Chautauqua	1	0	0	1
Cowley	4	0	3	1
Franklin	1	0	1	0
Greenwood	2	400	1	0
McPherson	28	21,222	0	12
Morris	2	0	0	2
Rice	2	0	1	1
Reno	1	75	0	0
Sedgwick	5	2,216	1	0
Stevens	2	0	0	2
Total August	49	23,913	7	20
Total July	43	7,525	13	10
Difference	6	16,388	6	10

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Barton	0	3	3
Bourbon	0	1	1
Butler	2	2	4
Chase	1	2	3
Clay	0	1	1
Coffey	0	1	1
Cowley	2	6	8
Dickenson	0	1	1
Elk	0	1	1
Ellsworth	0	2	2
Ford	0	3	3
Franklin	1	0	1
Greenwood	1	6	7
Graham	0	1	1
Harper	0	1	1
Harvey	0	3	3
Lincoln	1	0	1
Marshall	0	1	1
McPherson	12	27	39
Marion	0	2	2
Morris	2	2	4
Morton	0	1	1
Osage	0	1	1
Rawlins	0	1	1
Reno	0	1	1
Rice	3	4	7
Rush	0	2	2
Russell	2	1	3
Saline	0	1	1
Sedgwick	1	7	8
Sheridan	0	1	1
Stafford	0	1	1
Stevens	1	2	3
Sumner	0	4	4
Trego	0	1	1
Washington	0	1	1
Woodson	1	0	1
Total August	30	95	125
Total July	19	125	144
Difference	11	30	19

WELLS COMPLETED

CHAUTAUQUA COUNTY

36-34- 9 Lemert, Leighty et al 1 ..... gas

Wells completed 1
Gas 1
Gas production 1,800,000

COWLEY COUNTY

20-31- 6 Brooks, Deal et al 1 ..... dry
13-33- 5 Corn, Home Nat. Gas Co. 1 .. gas
8-32- 5 Bowman, Sooby and Prairie O. & G. Co. 2 ..... dry
24-33- 5 Stevenson, Home Nat. Gas .1 dry

Wells completed 4
Dry 3
Gas 1
Gas production 200,000

CHASE COUNTY

21-19- 6 Elliston, Kingwood Oil Co. 2.. gas

Wells completed 1
Gas 1
Gas production 900,000

GREENWOOD COUNTY

22-23-11 Rice, York State Oil Co. 1 ... dry
28-23-11 Beal, Phillips Pet. Co. et al 7. 400

Wells completed 2
Production 400
Dry 1

FRANKLIN COUNTY

35-16-17 Usher, Fields et al 1 ..... dry

Wells completed 1
Dry 1

McPHERSON COUNTY

16-21-3w Zerger, Noble, Stanolind O. & G. Co. and Amerada Pet. 2 887
1-20-2w Flook, Stanolind O. & G. Co. and Amerada Pet. 4 ..... [2]2093
6-20-1w Miller "B," Lario Oil Co. and Shell Pet. Corp. 1 2150
10-19-2w Hill, McPherson O. & G. Dev. Co. and Shell Pet. Corp. 2 gas
23-19-2w Dunsford, Wolf Creek Oil Co. and Sinclair O. & G. 1 .. gas
36-19-2w Wiggers, Lario Oil Co. and Shell Pet. 2 1988
21-19-1w Klassen, Magnolia Pet. Co. 1 gas
21-19-1w Shaw, Miller et al 1 ..... gas
31-19-1w Sellers, Lario Oil Co. and Shell Pet. 2 ..... gas
10-19-2w Hill, McPherson O. & G. Dev. Co. and Shell Pet. 3 ..... gas
23-19-2w Knudson, Rosenthal et al 1.. gas
30-19-1w Garrett, Abilene Oil Co. and Shell Pet. 2 1506
Anderson, Abilene Oil Co. and Shell Pet. 1 666
Anderson, Abilene Oil Co. and Shell Pet. 2 1933
Whitwright, Mid-Kansas O. & G. Co. 1 1248
36-19-2w Koehn, Olsen and Shell Pet. Corp. 3 771
12-20-2w Holmes, Jones and Shell Pet. Corp. 1 360
19-19-1w Gratton, Twin Drlg. Co. et al 2 ..... [1]673
13-19-2w Lovett, McPherson O. & G. Dev. Co. and Shell Pet. 2. gas
25-19-2w Suffield, Lario Oil Co. and Shell Pet. 2 1243
25-19-2w Unruh, Mid-Kansas O. & G. Co. 1 1726
20-19-1w Kaegi, Derby Pet. Co. and Shell Pet. 2 ..... gas
30-19-1w Whitwright, W. C. McBride, Inc. 2 2562
32-19-1w Day, Beard Drlg. Co. and Tidal Oil Co. 1 ..... gas
11-19-2w Fleming, McPherson O. & G. Dev. Co. and Shell Pet. 2. gas
14-19-2w Meyers "B," McPherson O. & G. Dev. and Shell Pet. 4 gas
6-20-1w Unruh, Plains Oil Co. and Shell Pet. 1 1156
16-21-3w Koehn, Ritz O. & G. Co. and Shell Pet. 1 360

Wells completed 28
Production 21,222
Gas 12
Gas production 185,906,000

[1]Twelve hours.

MORRIS COUNTY

15-17- 7 Irwin, Gen. Utilities Co. 1 .. gas
16-17- 7 Bersuch, Allender et al 1 ... gas

Wells completed 2
Gas 2
Gas production 2,250,000

RICE COUNTY

29-18-6w Jenninga, McFadden and Shell Pet. Corp. 2 ..... gas
3-21-6w Rainey, J. R. Robertson 1 .. dry

Wells completed 2
Dry 1
Gas 1
Gas production 33,600

RENO COUNTY

1-23-4w Goering, Study, Turner et al 2 75

Wells completed 1
Production 75

SEDGWICK COUNTY

19-27-2e Eatsborough, Derby Oil Co. 6 [1]344
15-26- 2 Lygrisse "A," Shell Pet. 2 .. 833
30-27- 2 Rimel, Derby Oil Co. 1 160
2-29- 1 McManaman, M. R. Buck et al 1 ..... dry
19-27- 2 Wheeler, Magnolia Pet. Co. 5 . 850

Wells completed 5
Production 2216
Dry 1

[1]Twelve hours.

STEVENS COUNTY

2-33-38w Spike, Texas Interstate P. L. Co. et al 1 ..... gas
7-33-37w Renfrew, Texas Interstate P. L. Co. and McNabb 1 ..... gas

Wells completed 2
Gas 2
Gas production 5,800,000

EAST CENTRAL TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Abd.	Gas	Rigs	Drlg.	Ttl.
Anderson	0	0	0	0	1	1	2
Angelina	0	0	0	0	1	1	2
Bowie	0	0	0	0	0	4	4
Cherokee	0	0	0	0	4	2	6
Delta	0	0	0	0	0	2	2
Ellis	0	0	0	0	1	2	3
Fannin	0	0	0	0	0	2	2
Freestone	1	0	1	0	1	0	1
Gregg	131	25,563	1	0	115	153	268
Grimes	0	0	0	0	1	1	2
Henderson	0	0	0	0	1	0	1
Hopkins	0	0	0	0	1	0	1
Houston	0	0	0	0	3	5	8
Hunt	0	0	0	0	4	1	5
Lamar	0	0	0	0	1	4	5
Nacogdoches	0	0	0	0	12	10	22
Polk	0	0	0	0	1	2	3
Rains	0	0	0	0	0	1	1
Red River	0	0	0	0	2	3	5
Rockwall	0	0	0	0	0	1	1
Rusk	114	29,382	4	0	62	160	222
Smith	18	4,123	1	0	11	23	34
Titus	0	0	0	0	0	3	3
Tyler	0	0	0	0	1	1	2
Upshur	18	2,442	3	0	16	30	46
Van Zandt	1	0	1	0	0	22	22
Wood	0	0	0	0	4	3	7
Total Aug.	283	62,510	11	0	243	437	680
Total July	437	100,701	25	0	147	478	625
Difference	154	39,191	14	0	96	41	55

WELLS COMPLETED

FREESTONE COUNTY

E. L. Smith's No. 1 E. Jackson ..... abd

GREGG COUNTY

Barkley and Lincoln's No. 1 Flemster.. *250
East Texas Refining Co.'s No. 2 Collins. *165
Gulf Prod. Co.'s No. 2 Clements *155
Magnolia Pet. Co.'s No. 1 W. R. Nichols *604
G. & A. Co.'s No. 1 R. R. Collins *110
Perkins et al's No. 1 Walter Megredo.. *95
Selby Oil & Gas Co.'s No. 1 L. C. Ingram *226

Stanolind Oil & Gas Co.'s No. 2 M. McGrill *139
Sun Oil Co.'s No. 2 McKinley 162
The Texas Company's No. 1 G. W. Clark .*132
Yount Lee Oil Co.'s No. 1-C McKinley.. *97
Yount Lee Oil Co.'s No. 1 Fannie Smith *70
Yount Lee Oil Co.'s No. 2 Thrasher and Stuckey *97
Barnsdall's No. 2 Dee Smith *145
Cal-Tex's No. 1 Crim *94
Finley and Dyke's No. 1 Blackman *200
Golding and Murchison's No. 1 L. P. Griffin *190
Gulf Prod. Co.'s No. 2 S. G. Andrews....*123
Gulf Prod. Co.'s No. 3 S. G. Andrews....*126
Lambert and Hines' No. 1 D. Beall.... *95
Magnolia Pet. Co.'s No. 5 Griffin 143
Magnolia Pet. Co.'s No. 1 L. A. Griffin. 140
Magnolia Pet. Co.'s No. 2 Hughey 68
Magnolia Pet. Co.'s No. 2 J. King 110
Pace Pet. Co.'s No. 1 Tripp Elder .... (†)
Sinclair Oil & Gas Co.'s No. 1 S. G. Andrews *175
Sinclair Oil & Gas Co.'s No. 2 S. G. Andrews 918
Sinclair Oil & Gas Co.'s No. 8 M. T. Cole *100
Sinclair Oil & Gas Co.'s No. 9 M. T. Cole 555
Sinclair Oil & Gas Co.'s No. 1-B A. A. King *245
Sinclair Oil & Gas Co.'s No. 2-B A. A. King *250
Sinclair Oil & Gas Co.'s No. 1-B A. A. King *221
Sinclair Oil & Gas Co.'s No. 2-B A. A. King 220
Stanolind Oil & Gas Co.'s No. 2 J. R. Beall *169
Sun Oil Co.'s No. 4 Hilburn and Lloyd.. *93
Sun Oil Co.'s No. 5 Hilburn and Lloyd.. *95
The Texas Company's No. 2 M. T. Cole. *215
L. C. Thorpe's No. 1 J. A. Butts ..... (†)
Arkansas Fuel Oil Co.'s No. 1 H. Stephens 119
Jim Cloud and Dana Oil Co.'s No. 1 R. Christian *132
Columbia Oil & Gas Co.'s No. 1 C. J. Dolahit *130
Delaney and Stoddard's No. 1 J. C. McKinley *85
Delaney and Stoddard's No. 2 J. C. McKinley *98
East Texas Refining Co.'s No. 1 Hindman 600
Fain and McGaha's No. 1 D. S. Ritchie.*200
Gregg Oil Co.'s No. 1 T.&P.R.R. 73
Humble Oil & Ref. Co.'s No. 1 L. A. Christian 197
Humble Oil & Ref. Co.'s No. 3 Holland *428
Humble Oil & Ref. Co.'s No. 2 W. R. Hughes 270
Magnolia Pet. Co.'s No. 3 Salters 572
Margay Oil Co.'s No. 1 R. Corbin *200
C. J. Perren's No. 1 J. F. Doby *250
Sinclair Oil & Gas Co.'s No. 1 May Lawson *200
Sinclair Oil & Gas Co.'s No. 1 W. H. Williams *214
Stanolind-Simms Oil Co.'s No. 1 W. H. Boles *126
Sun Oil Co.'s No. 2 Aiken *199
W. F. Turner's No. 1 A. Jones *105
Atlantic-Byrd Frost's No. 3-B Andrews. *140
Cranfill & Reynold's No. 1 R. L. Martin. *200
Foster and Rhode's No. 1 Ned Williams. abd
Gulf Prod. Co.'s No. 1 Hilburn et al.... 65
Hodges et al's No. 1 Rice *200
Humble Oil & Ref. Co.'s No. 8-B S. S. Laird 58
Humble Oil & Ref. Co.'s No. 9-B S. S. Laird *21
Humble Oil & Ref. Co.'s No. 3 Dora Thomas 62
Iowa-Payne's No. 1 Frank Elder *110
Mid-Kansas Oil & Gas Co.'s No. 1 J. S. King *110
Prairie Oil & Gas Co.'s No. 3 Elder.... *217
Sinclair Oil & Gas Co.'s No. 10 M. T. Cole *220
Sinclair Oil & Gas Co.'s No. 7 A. A. King *232
Sinclair Oil & Gas Co.'s No. 3-B A. A. King *200
Sinclair Oil & Gas Co.'s No. 4-B A. A. King *215
Sinclair Oil & Gas Co.'s No. 5-B A. A. King *227
Sun Oil Co.'s No. 3 Hilburn and Lloyd *108
C. J. Webster's No. 1 Mary Charles *185
A. B. D. Oil Co.'s No. 1 H. McNealy....1000
Allison Drlg. Co.'s No. 1 W. J. Robertson *800
Continental Oil Co.'s No. 1 Crews *190
Continental Oil Co.'s No. 2 Crews *170
Gulf Prod. Co.'s No. 1 S. B. Hall *100
Gulf Prod. Co.'s No. 2 J. S. King *124
Humble Oil & Ref. Co.'s No. 9 S. S. Laird 21
Leonard Pet. Co.'s No. 1 Register *130
Prairie Oil & Gas Co.'s No. 1 Elder *217
Shell Pet. Corp.'s No. 2 J. W. Elder *191
Shell Pet. Corp.'s No. 11 J. B. Watson ..*105
Shell Pet. Co.'s No. 2 Willoughby *145
The Texas Company's No. 1 S. B. Walker 145
Dr. Thompson's No. 1 Seaborn King *120
Becker et al's No. 1 J. C. Barrett *240
Tom Cannon et al's No. 1 Rogers *208
Continental Oil Co.'s No. 1 Todd 130
Delany and Stoddard's No. 1 J. C. McKinley *150
Dillard Drlg. Co.'s No. 2 W. C. Jones ..*150
East Texas Ref. Co.'s No. 1 Ana Christian *154
Falvey et al's No. 1 Free *135
Flemming and Kimal's No. 1 J. Barnes.*220
Gulf Prod. Co.'s No. 3 Boseman 98
Humble Oil & Ref. Co.'s No. 1 Boles *233
Magnolia Pet. Co.'s No. 1 E. A. Brawley *780
Stanolind and Simms' No. 4 Pirsons ..*194
Stanolind and Simms' No. 4 A. J. Tuttle 323
Stroube and Stroube's No. 1 S. Spurrier .*305
Sun Oil Co.'s No. 2 Haynes *200
W. F. Turner's No. 1 Andrew Jones *95
Yount Lee Oil Co.'s No. 1 J. Stephens. *500
Yount Lee Oil Co.'s No. 1 E. M. Whatley *86
Atlantic-Byrd's No. 3-A Andrews .... (†)
A. Cohen's No. 1 Colored Church *60
C. M. Becker et al's No. 1 Garrett *10
Delaney and Stoddards' No. 1 G. S. and R. S. McKinley *150
Dillards' No. 2 Jones *64
Empire Gas & Fuel Co.'s No. 3 Muckleroy *130
Gulf Prod. Co.'s No. 2 Alexander *100
Gulf Prod. Co.'s No. 3 Boseman 88
Gulf Prod. Co.'s No. 2 Nealy et al *120
Gulf Prod. Co.'s No. 3 Alexander 100
Hamil and Smith's No. 1 Meyers ..... (†)
Humble Oil & Ref. Co.'s No. 4 J. A. Knowles *100
Humble Oil & Ref. Co.'s No. 4 Dora Thomas 79
Magnolia Pet. Co.'s No. 1 Brawley *780
Magnolia Pet. Co.'s No. 2 Griffin 135
Mullendor and Berry's No. 2 Elder *200
Pace's No. 1 Trip Elder *50
Searight et al's No. 1 Blackman 65
Stanolind and Simms Oil Co.'s No. 4 Person *190
Stanolind and Simms Oil Co.'s No. 1 Tuttle 1323
Stroube and Stroube's No. 1 Superior..*305
Yount Lee Oil Co.'s No. 3 Benson *150
Yount Lee Oil Co.'s No. 3 Jones *105
Yount Lee Oil Co.'s No. 4 Jones *100
Yount Lee Oil Co.'s No. 1 Stephens *500

Total completions 131
Abandoned wells 1
Initial production 25,563

*Per hour. †No gauge. ‡Per day.
Note—Initial production based on one-hour gauge through various chokes.

RUSK COUNTY

George Guthrie's No. 1 G. P. Perry ... (†)
Humble Oil & Ref. Co.'s No. 3 C. E. Christian *116
Humble Oil & Ref. Co.'s No. 3 R. H. and W. L. Laird *95
Magnolia Pet. Co.'s No. 4 C. C. Still ... 132
Magnolia Pet. Co.'s No. 2 D. Wells 189
Ray Martin et al's No. 1 R. F. Russell.. *95
Stanolind Oil & Gas Co.'s No. 1 C. O. Christian *69
Sun Oil Co.'s No. 5 J. R. Beall *100
Bill Tucker's No. 2 Dorcas Wills *93
F. H. E. Oil Co.'s No. 1-C Thompson .. *210
Golding and Murchison's No. 1 J. Lee.. *50
Gulf Prod. Co.'s No. 4-A Keeling *80
Gulf Prod. Co.'s No. 1 W. L. Maxwell..*105
Gulf Prod. Co.'s No. 3 W. L. Maxwell..*100
Gulf Prod. Co.'s No. 2-A W. Shaw *72
Humble Oil & Ref. Co.'s No. 2 Jones Fuller *110
Humble Oil & Ref. Co.'s No. 1 W. B. Key *133
Humble Oil & Ref. Co.'s No. 1 H. A. Piercy *121
Humble Oil & Ref. Co.'s No. 9 Plowman *62
Humble Oil & Ref. Co.'s No. 6 C. J. Thompson *58
Humble Oil & Ref. Co.'s No. 1 Virginia Turner *111
H. L. Hunt's No. 2 B. F. Maxwell 1500
McIntyre Drlg. Co.'s No. 1-B Thompson *100
McMillan Pet. Co.'s No. 1 M. A. Thrash.6700
Pace et al's No. 2 Deason *180
Panhandle Ref. Co.'s No. 1 R. Pool *135
Sinclair Oil & Gas Co.'s No. 5 Ida L. Kinney 1200
Sinclair Oil & Gas Co.'s No. 4-A Mayfield *140
Sinclair Oil & Gas Co.'s No. 2-B Mayfield *135
Sun Oil Co.'s No. 1 Schuler and Schuler.*200
Thompson and Bean's No. 1 Alford 65
Vitex Oil Co.'s No. 5 Eaton ..... (†)
Mills Bennett's No. 6 Brightwell *150
Gulf Prod. Co.'s No. 1-A C. E. Christian *93
Snowden & McSweeney's No. 5 W. L. and R. H. Laird *150
Sun Oil Co.'s No. 6 J. R. Beall *102
Carter et al's No. 1 L. J. Jones *160
E. L. Chapman's No. 1 W. R. Moore ... *150
Coastal Oil Co.'s No. 1 M. Pool 2000
Coombs et al's No. 2 Fos *350
Golding and Murchison's No. 1 Pinkston 738
Gulf Prod. Co.'s No. 3 Cashier *155
Gulf Prod. Co.'s No. 1 Jack Wiley *150
Humble Oil & Ref. Co.'s No. 1 Bagwell *97
Humble Oil & Ref. Co.'s No. 2 Blackwell *80
Humble Oil & Ref. Co.'s No. 1 S. A. Glover 54
Humble Oil & Ref. Co.'s No. 1-A Ida Holt 81
Humble Oil & Ref. Co.'s No. 1 D. C. Joyner 774
Humble Oil & Ref. Co.'s No. 13 Kangerga *108
Humble Oil & Ref. Co.'s No. 7 Plowman *78
Humble Oil & Ref. Co.'s No. 2-A A. W. Shaw *56
H. L. Hunt et al's No. 1 J. Lew *186
Luling Oil & Gas Co.'s No. 1 E. B. Alford 900
Magnolia Pet. Co.'s No. 3 Eaton *500
Mid-Kansas Oil & Gas Co.'s No. 1 Joe Mills *92
J. J. O'Hearn's No. 2 Mary McMullen.. *102
Sinclair Oil & Gas Co.'s No. 4 Kinney ..1425
Sinclair Oil & Gas Co.'s No. 1-B Mayfield *142
Standard Pipe & Supply Co.'s No. 1 J. Bell 870
Stanolind Oil & Gas Co.'s No. 3 O'Quinn *110
Tulsa Oil & Gas Co.'s No. 10 O'Quinn..*120
Grady Vaughan et al's No. 1 W. O. Alford ..... (†)
Everett Drlg. Co.'s No. 1 Rees ..... abd
J. S. Kimbrough's No. 1 W. J. Weatherly ..... abd
Bill Rowe et al's No. 1 Deason 35
Devonian Oil Co.'s No. 1 Alford ..... (†)
Gulf Prod. Co.'s No. 1 Murphy *60
Humble Oil & Ref. Co.'s No. 6 Blackwell *120
Humble Oil & Ref. Co.'s No. 3 Silvey..*105
Humble Oil & Ref. Co.'s No. 7 Thompson *114
Humble Oil & Ref. Co.'s No. 6 Wooley.. *83
Humble Oil & Ref. Co.'s No. 4-A B. F.. *84
H. L. Hunt's No. 3 Maxwell *210
Jackson-Wise-Sneddon's No. 3 Wilson.. (†)
John Mabee's No. 1 S. Stone ..... (†)
Magnolia Pet. Co.'s No. 6 Moore 130
Penn Oil Co.'s No. 1 Brightwell *90
Roberts and Walton's No. 1 Christian..*260
Shell Pet. Corp.'s No. 2 W. P. Moore .*175
Shell Pet. Corp.'s No. 3 Moore *195
Stanolind Oil & Gas Co.'s No. 3 J. H. Beall *140
Arkansas Fuel Oil Co.'s No. 2 Beale ..*120
Bullock Oil Co.'s No. 1 Alford 1008
E. L. Chapman's No. 2 Minchew *135
Jim Cloud's No. 1 Stone ..... (†)
Cochran and Martin's No. 1 Cansler ...*136
Dana Oil Co.'s No. 1 Stone *185
East Texas Ref. Co.'s No. 1 Holland .. *80
Hoosier's No. 1 Neal 62
Humble Oil & Ref. Co.'s No. 2 Barksdale 430
Humble Oil & Ref. Co.'s No. 4 Blackwell *83
Humble Oil & Ref. Co.'s No. 2 Dennis.. *100
Humble Oil & Ref. Co.'s No. 1 First Guaranty State Bank *109
Humble Oil & Ref. Co.'s No. 5 J. E. Glover *103
Humble Oil & Ref. Co.'s No. 13 Kangerga *103
Humble Oil & Ref. Co.'s No. 1 Key *106
Humble Oil & Ref. Co.'s No. 2-A R. E. L. Silvey *110
Humble Oil & Ref. Co.'s No. 1 J. Thompson *135
Humble Oil & Ref. Co.'s No. 3-A L. Walker 62
H. L. Hunt's No. 5 Young *135
Magnolia Pet. Co.'s No. 1 Mason 166
Mitchell et al's No. 1-B Frederick 400
A. W. Phillips' No. 1-B Pinkston *150
Vaughn et al's No. 1 Reagan *200
Humble Oil & Ref. Co.'s No. 3 George Alexander ..... abd
Humble Oil & Ref. Co.'s No. 1 Eula McDavis ..... abd
Devonian Oil Co.'s No. 1 Motley *110
Gulf Prod. Co.'s No. 1-A C. B. Christian *93
Gulf Prod. Co.'s No. 5 Jernigan *113
Humble Oil & Ref. Co.'s No. 26 Crim .. *79
Humble Oil & Ref. Co.'s No. 3-A B. F. Laird *95
Humble Oil & Ref. Co.'s No. 1-B Sexton *92
Magnolia Pet. Co.'s No. 6 Bradbury 145
Shell Pet. Corp.'s No. 1 J. H. Spivey ..*107

Total completions 114
Abandoned wells 4
Initial production 39,382

*Per hour. †No gauge.
Note—Initial production based on one-hour gauge through various chokes.

SMITH COUNTY

Roy I. Carter's No. 1-A T. O. Wright.. (†)
Joiner et al's No. 1 W. W. Wright .... abd
Sinclair Oil & Gas Co.'s No. 3-A Jarvis ..... (†)
Sinclair Oil & Gas Co.'s No. 1-C Jarvis *175
Sinclair Oil & Gas Co.'s No. 3-A Mayfield 1025
Sinclair Oil & Gas Co.'s No. 1 Dora Wright 502
Sinclair Oil & Gas Co.'s No. 2 R. G. Wright *258
Sun Oil Co.'s No. 1-B A. V. Ritch *235
The Texas Company's No. 1 J. W. Wilson *115
Magnolia Pet. Co.'s No. 3 Loonier *660
Magnolia Pet. Co.'s No. 6 J. R. Wright. 167
Mid-Kansas Oil & Gas Co.'s No. 1 Thompson 82
H. H. Lemaster's No. 1 Wright *495
Gulf Prod. Co.'s No. 1 Smith *120
Alex McCutchin's No. 1 Wright *50
Magnolia Pet. Co.'s No. 7 Wright 63
The Texas Company's No. 1 J. W. Wilson *185
Pace's No. 1 Wright ..... (†)

Total completions 18
Abandoned wells 1
Initial production 4123

*Per hour. †No gauge.
Note—Initial production based on one-hour gauge through various chokes.

UPSHUR COUNTY

Gillett and Tarr's No. 1 Wolford ..... abd
Humble Oil & Ref. Co.'s No. 3 Edwards *94
Magnolia Pet. Co.'s No. 5 Hampton 148
Rogers-Rogers' No. 1 Isabel Walker ... 47
Humble Oil & Ref. Co.'s No. 4 Edwards 253
Magnolia Pet. Co.'s No. 2 J. W. Free ..*400
Magnolia Pet. Co.'s No. 4 J. W. Free ..*400
M. H. Peckham's No. 1 J. B. Webb *96
The Texas Company's No. 1 H. L. Phillips *125
A. O. Trammell et al's No. 1 Mary A. Victory 60
Brennan and Woods' No. 1 Robertson... abd
Humble Oil & Ref. Co.'s No. 5 Edwards *85
Humble Oil & Ref. Co.'s No. 2 A. O. Phillips ..... (†)
Mead Bros. et al's No. 1 Wofford ..... abd
Mudge Oil Co.'s No. 2 Free *163
Pelican's No. 1 Hamilton *20
Roeser and Pendleton's No. 1 E. C. Evers *151
Magnolia Pet. Co.'s No. 5 J. W. Free ...*400

Total completions 18
Abandoned wells 3
Initial production 2442

*Per hour. †No gauge.

VAN ZANDT COUNTY

Walmer Oil Co.'s No. 1 J. R. Ivey .... abd

Total completions 1
Total abandoned wells 1

NORTH CENTRAL TEXAS

Summary of Wells Completed

	Comp.	Prod.	Dry	Gas
Archer	6	65	4	0
Brown	0	0	0	0
Callahan	0	0	1	0
Clay	1	0	1	0
Coleman	3	0	2	0
Collin	1	0	1	0
Comanche	1	0	1	0
Cooke	7	3	5	0
Denton	5	0	3	0
Eastland	4	0	2	2
Grayson	4	0	4	0
Hood	3	0	3	0
Jack	2	675	1	0
Johnson	1	0	1	0
McCulloch	1	0	1	0
Parker	4	0	4	0
Shackelford	1	0	1	0
Throckmorton	1	0	1	0
Wichita	2	140	1	0
Wise	3	0	3	0
Young	11	248	3	0
Total August	61	1,131	43	0
Total July	42	556	34	2
Difference	19	575	9	2

Summary of Rigs and Wells Drilling

	Rigs	S.D.	Drlg.	Ttl.
Archer	1	3	11	15
Brown	0	3	1	4
Callahan	0	0	0	0
Coleman	1	4	4	9
Cooke	1	0	2	3
Clay	0	1	1	2
Eastland	0	1	2	3
Erath	0	2	0	2
Jack	1	0	1	2
Palo Pinto	1	7	1	9
Shackelford	0	1	1	2
Stephens	0	2	1	3
Throckmorton	0	2	0	2
Wichita	9	0	4	13
Wilbarger	0	1	2	3
Young	5	4	6	15
Miscellaneous counties	1	7	4	12
Total August	20	38	41	99
Total July	15	66	55	136
Difference	5	28	14	37

WELLS COMPLETED

ARCHER COUNTY

W. P. Harmonson, A. B. Harmonson 1 . 40
T. V. Carr, Hunter Lincoln 1 25
Kunkel, Skeen & Houghton 1 ..... dry
Kemp & Kempner, G. Hammond Drlg. Co. 1 ..... dry
W. P. Ferguson, Marshall & Lewis 1 .. abd
J. H. Turbeville-B, Omohundro 2 ..... dry

Completions 6
Production 65
Dry holes 4

BROWN COUNTY

Harrison & Pittman, Thomas et al 1 . abd

CALLAHAN COUNTY

Johnson, Warren & Rhys 1 ..... abd

CLAY COUNTY

W. C. Kelly, Dawson et al 2 ..... abd
H. C. Edrington Est., Temple et al 1.. abd

COLEMAN COUNTY

Golson, Brek Oil Co. 6 ..... abd
Gray-A, Walter Gray 1 ..... abd
Barton, Brek Oil Co. 1 ..... abd

COLLIN COUNTY

Jennins, Stipe & Brewer 1 ..... abd

COMANCHE COUNTY

Haynes Est., Haynes et al 1 ..... abd

COOKE COUNTY

W. M. Blair, C. F. Beasley 1 ..... abd
Davis, Big Indian O. & G. Co. 2 ..... dry
C. C. & C. B. Potter, Comail Oil Co. 1. abd
O. O. Sitzer, W. F. Russell et al 1 ... dry
H. E. Hyman, C. M. Beckner 1 ..... abd
C. M. Martin, Hutton, Hess & Hutto 1 . 3½
Eberhart, Hoffer Oil Corp. 2 ..... abd

Completions 7
Production 3½
Dry holes 5

DENTON COUNTY

M. J. Davis, B. G. Byars 1 ..... abd
Daly, Harvey et al 1 ..... dry
Freeman, H. McMann 1 ..... abd
Stroud, H. McMann 1 ..... abd
Hughes, W. E. Scherle 1 ..... abd

Completions 5
Dry holes 3

EASTLAND COUNTY

E. A. Davis, Hopkins et al 1 ..... abd
Cozart, Lone Star Gas Co. 2 ..... gas
Hoffer-Grove, Lone Star Gas Co. 1 .... gas
Mrs. M. B. Westienholm, Texas Dev. Co. 1 ..... abd

Completions 4
Dry holes 2
Gas wells 2
Gas production 3,324,000

GRAYSON COUNTY

R. C. Potts, F H E Oil Co. 2 ..... dry
Coleman-Peters, C. E. Litchfield et al 2 abd
Boston, Hickey & McGee 1 ..... abd
O'Neal, R. F. Smith Oil Co. 1 ..... abd

Completions 4
Dry holes 4

HOOD COUNTY

J. A. Ables, Sampson Oil Co. 1 ..... abd
J. Peters, Sampson Oil Co. et al 1 ... abd
Leck, Hood County Oil Interests 1 ..... dry

Completions 3
Dry holes 3

JACK COUNTY

S. A. York, Brazos River Gas Co. 1 675
M. B. Cook, Magnolia Pet. Co. 1 ..... dry

Completions 2
Production 675
Dry holes 1

JOHNSON COUNTY
O. P. Lightfoot, C. E. Windham et al 1. abd
McCULLOCH COUNTY
W. W. Walker, W. J. Bryant et al 1 . abd
PARKER COUNTY
Mrs. A. V. Sell, Lloyd Oil Corp. 1 ..... dry
Williams & Pickens, Cooke & Muller 1 abd
J. F. Gilley, Owens & Spurlock 1 ..... abd
W. S. Scruggs, Tom Owen et al 1 ... abd
Completions 4
Dry holes 4
SHACKELFORD COUNTY
W. C. Herrington, Jarvis et al 1 ..... dry
THROCKMORTON COUNTY
Swenson, Swenson O. & G. Co. 2 ..... dry
WICHITA COUNTY
S. I. & H. M. Munger, Deep Oil Dev. Co. 1 140
J. H. & R. L. Bradley, W. H. Hammon et al 3 ..... dry
Completions 2
Production 140
Dry holes 1
WISE COUNTY
C. E. Dutton, Isham & Tilton 1 ..... abd
Milligan, Orange County Ref. Co. 1 ... abd
Texas L. & M., C. Rosenfield et al 1 ... abd
Completions 3
Dry holes 3
YOUNG COUNTY
W. T. Finch Est.-A, Bratcher Oil et al 1 dry
Graham, J. H. Kleiner 1 40
Graham, J. H. Kleiner 2 25
B. H. Larimore, Geo. Milienkoph 2 25
T. F. Harman, H. J. Whitaker 1 5
L. A. Winstead, H. J. Whitaker 1 ..... dry
Belknap Coal Co., Willis et al 6 48
J. E. Morris, Willis & Terrell 1 ..... dry
F. M. Cullers, Wise & Porterfield 5 25
J. F. Larimore, Young Bros. & Terrell 1 30
Graham, Nash & Windfohr 3 50
Completions 11
Production 248
Dry holes 3

WEST TEXAS FIELDS

Summary of Wells Completed

	Comp.	Prod.	Dry	Gas
Andrews	1	50	0	0
Concho	3	0	3	0
Crane	1	0	1	0
Dawson	1	0	1	0
Fisher	1	1,000	0	0
Gaines	1	0	1	0
Howard	2	700	0	0
Hudspeth	1	0	1	0
Irion	1	0	1	0
Jones	3	25	2	0
Loving	5	835	1	0
Menard	2	0	2	0
Pecos	3	0	3	0
Upton	2	625	0	0
Ward	5	593	0	0
Total August	32	3,828	16	0
Total July	21	9,369	9	1
Difference	11	5,541	7	1

Summary of Rigs and Wells Drilling

	Rigs	S.D.	Drlg.	Ttl.
Crane	1	0	0	1
Ector	1	1	0	2
Fisher	0	0	0	0
Howard	1	0	0	1
Irion	1	2	4	7
Jones	1	1	0	2
Loving	2	7	4	13
Pecos	2	1	1	4
Reagan	0	0	0	0
Upton	1	2	0	3
Ward	2	12	8	22
Winkler	0	0	0	0
Miscellaneous counties	0	17	5	22
Total August	12	43	22	77
Total July	10	44	41	95
Difference	2	1	19	18

WELLS COMPLETED
ANDREWS COUNTY
J. W. Kuykendall, Deep Rock Oil Co. et al 1 50
CONCHO COUNTY
S. Waring Est., Beesley et al 1 ..... abd
H. E. Wood, Betts et al 1 ..... abd
Brosig, Turner, Cromwell & Wesner 1. abd
CRANE COUNTY
B. P. Nolen, H. H. Sides et al 1 ..... dry
DAWSON COUNTY
John Robinson, Ray Albaugh et al 1 .. abd
FISHER COUNTY
T. A. Jean, The Texas Company 1 ...1000
GAINES COUNTY
Nicky Alley, Landreth Prod. Corp. 1 ... dry
HOWARD COUNTY
E. E. Brindley, Continental Oil Co. 1 .. 50
W. R. Settles, Humble O. & R. Co. 1 .. 650
Completions 2
Production 700
HUDSPETH COUNTY
G. W. Love, H. H. Henshaw 1 ..... dry
IRION COUNTY
Harlan Horney, Perry Fox 1 ..... dry
JONES COUNTY
L. L. Burton, Abers & Prewitt 1 ..... abd
Mrs. Jane Hoyt, Moutray Oil Co. 3 ... 25
S. W. King, Shaheen & Duffy 2 ..... dry
LOVING COUNTY
D. P. Dean, Grisham-Hunter Corp. 1 .. dry
Reagan & McElvain, Henshaw et al 2 . abd
Jim Wheat, Rush, Anderson & Moor 1 . abd
Louis Wichmann, Adams et al 1 490
J. G. Allen, West Texas Pet. Corp. 2 . 345
Completions 5
Production 835
Dry holes 1
MENARD COUNTY
Callan City-A, C. O. Moore Oil Co. 1 ... abd
Sorrell, Priest & Duffy 1 ..... abd

PECOS COUNTY
E. W. Bennett et al, J. R. Miller et al 1 dry
H. J. Eaton, Perren et al 2 ..... dry
Mary A. Devlin, W. F. Whitaker et al 1 abd
UPTON COUNTY
H. L. McClintic, C. C. Duffey et al 5 ... 385
John F. Lane, Harry Baldwin et al 1 .. 240
Completions 3
Production 625
WARD COUNTY
J. T. Sweatt et al, Moran & Burkhart 1 68
A. D. Cummins, J. D. O'Quinn et al 1. 120
Mrs. M. Himmel, Simms Pet. Co. 1 8
Hutchings Stock Assn., Tr.-C. Gulf Prod. Co. 8 372
J. F. Boogher, Vic Martin 1 25
Completions 5
Production 593

PANHANDLE FIELDS

Summary of Wells Completed

	Comp.	Prod.	Dry	Gas
Carson	3	0	0	3
Cottle	1	0	1	0
Gray	2	180	0	0
Hutchinson	1	0	1	0
Moore	1	0	0	1
Total August	8	180	2	4
Total July	12	1,751	0	3
Difference	4	1,571	2	1

Summary of Rigs and Wells Drilling

	Rigs	S.D.	Drlg.	Ttl.
Carson	2	1	2	5
Gray	7	6	3	16
Hutchinson	1	3	1	5
Moore	3	0	2	5
Wheeler	0	1	0	1
Miscellaneous counties	1	6	0	7
Total August	14	17	8	39
Total July	12	17	11	40
Difference	2	0	3	1

WELLS COMPLETED
CARSON COUNTY
Burnett (Sec. 60), Texas Interstate P. L. Co. 1 ..... gas
H. R. Kees, Carson Lake O. & G. Co. 1. gas
J. J. Crutchfield, The Texas Company 1 gas
Completions 3
Gas wells 3
Gas production 73,750,000
COTTLE COUNTY
M. Richards, Darby Oil Co. & Merry Bros.-Perini 1 ..... dry
GRAY COUNTY
A. Barrett, Danciger O. & R. Co. 1 ... 150
M. Davidson, Stekoll & Rieger 1 30
Completions 2
Production 180
HUTCHINSON COUNTY
Johnson Bros., Liner Drilling Co. 1 ... dry
MOORE COUNTY
Sneed, Sec. 33, Texas Interstate P. L. Co. 1 ..... gas

SOUTHWEST TEXAS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.	Ttl.
Bruner	0	0	0	0	0	1	1
Darst Creek	0	0	0	0	0	0	0
Dobrowolski	0	0	0	0	0	1	1
Chittim	0	0	0	0	0	1	1
Cartwright	1	100	0	0	0	1	1
Chapman	0	0	0	0	0	1	1
McFadden	0	0	0	0	0	2	2
Mirando	1	50	0	0	1	3	4
Pettus	0	0	0	0	0	2	2
Pryor	0	0	0	0	0	0	0
Saxet	2	115	0	0	0	1	1
Somerset	0	0	0	0	0	0	0
Slick	0	0	0	0	0	0	0
Schimmel	2	264	1	0	0	0	0
White Point	0	0	0	0	0	1	1
Miscellaneous	30	63	23	3	7	78	85
Ttl. Aug.	36	592	24	3	8	92	100
Ttl. July	33	709	28	2	11	98	109
Difference	3	117	4	1	3	6	9

WELLS COMPLETED
SCHIMMEL POOL—BASTROP COUNTY
Trigg, Schimmel & Batts 3 264
Williams, Schimmel & Batts 2 ..... abd
CARTWRIGHT POOL—LIVE OAK COUNTY
Cartwright, Houston Oil Co. 23 100
SAXET POOL—NUECES COUNTY
Lawrence (Harrell), Houston Oil Co. 1 50
Rand Morgan, Houston Oil Co. 2 65
CUELLAR POOL—ZAPATA COUNTY
Cuellar, A. R. McLennan 3 50
Wells completed 6
Production 529
Dry 1
MISCELLANEOUS COUNTIES
WILDCATS
Atascosa County—
Mrs. G. Martin, Glenn Mathis 1 ..... abd
Bastrop County—
Marberger, Smith & Barnes 1 ..... abd
Ray, W. H. Champion 1 ..... abd
Bexar County—
Anoil, Witherspoon Oil Co. 1 5
Ramsinski, Witherspoon Oil Co. 1 15
Brooks County—
Singer, Ike Howeth et al 1 ..... abd
Duval County—
Hubbard, Camp and Southern C. O. P. 1 abd
Goliad County—
J. E. Pettus, V. F. Neuhaus 1 15
Jim Hogg County—
Teofilo-Gomez, D. C. DeWitt 1 ..... abd
Palacious, Peterman & Minahan 1 .... abd
Jim Wells County—
McGill, Carsill O. & G. Co. 2 ..... gas
Kendall County—
Speck & Weldner, Hick et al 1 ..... abd
Kleberg County—
Finnegan, Barbee & Hunter 1 ..... abd
Kerr County—
Westland, B. M. Hatfield 1 ..... abd
Rischworth, Hatfield et al 1 ..... abd
Live Oak County—
Harvey Hatcher, Catlett & O'Neill 1 .. abd
Medina County—
L. Mofield, Sunflower Oil Co. 1..... abd
J. P. Nixon, F. E. Tegler 6-A ..... abd
Real County—
A. D. Auld, Gant, Kilgore & Evans 1 .. abd
San Patricio County—
Mayfield, United Prod. Co. 1 ..... abd
Welder, Welder Oil Corp. 1 ..... abd
Starr County—
Kelsey-Bass, Los Olmos Oil Co. 5-A .. 25
Seabury et al, Nenyard et al (Sacramento O. & G. Co.) 1 ..... abd
F. Dayne, B. B. Tips 1 ..... abd
Victoria County—
Levi, Simpson-Fell Oil Co. 1 ..... abd
West, Newton et al 1 ..... abd
McFadden, T. B. Slick estate 1 ..... gas
Webb County—
De la Garza, Southern Gas Utilities and O. W. Killam 1 ..... gas
Williamson County—
A. Forewood, Citizens Oil Dev. Co. 1 .. abd
Wilson County—
Tudyke, Sun Oil Co. and Penn Oil Co. 1 abd
Wells completed 30
Production 63
Gas production 70,000,000
Dry 23

NORTH LOUISIANA

Summary of Field Operations

	Comp.	Prod.	Dry*	Gas	Rig	Dlg.	Ttl.
Bienville	0	0	0	0	0	1	1
Bossier	0	0	0	0	0	5	5
Caddo	1	0	0	1	0	5	5
Caldwell	0	0	0	0	0	2	2
Catahoula	0	0	0	0	0	1	1
Claiborne	0	0	0	0	0	1	1
DeSoto	0	0	0	0	0	6	6
LaSalle	0	0	0	0	0	1	1
Morehouse	0	0	0	0	1	0	1
Natchitoches	0	0	0	0	0	4	4
Ouachita	1	0	0	0	1	2	3
Rapides	0	0	0	0	0	1	1
Red River	0	0	0	0	0	2	2
Richland	5	0	1	4	6	5	11
Sabine	5	1,787	2	0	7	16	23
Tensas	0	0	0	0	1	1	2
Union	1	0	1	0	0	1	1
Winn	1	0	1	0	0	0	0
Total Aug.	14	1,787	5	6	17	53	70
Total July	16	2,005	6	6	7	53	60
Difference	2	218	1	0	10	0	10

*Gas production—Caddo, 3,439,000; Ouachita, 3,136,337; Richland, 94,328,800; total, 100,954,137.

WELLS COMPLETED
CADDO PARISH
33-23-16 Smith, United Gas Public Service Co. 1 ..... gas
Gas production 3,439,000
OUACHITA PARISH
29-19-4e McEnnery, Ark.-La. Pipe Line Co. 7 ..... gas
Gas production 3,136,337
RICHLAND PARISH
29-16-6e McCoy heirs, Hope Production Co. 1 ..... dry
19-17-6e Rosenwald & Ducomb, Southern Carbon Co. 4..... gas
24-17-5e Rosenwald & Ducomb, Southern Carbon Co. 5..... gas
19-17-6e Marshfield, United Gas Public Service Co. 5 ..... gas
24-17-5e Wayne Land & Timber, United Gas Public Service Co. 1-A gas
Gas production 94,328,800
SABINE PARISH
1-7-13 Nulton, Dengail Oil & Gas Co. 1 175
16-7-12 Bowman-Hicks, Loring Oil Co. 17 1500
10-7-11 Peterson, Magnolia Pet. Co. 1.. 112
2-7-12 Bowman-Hicks, H. W. Perritt 4 dry
2-7-11 Nabours, The Texas Co. 1..... dry
Production 1787
UNION PARISH
21-21-1w Summitt Land Co., T. P. Fields 1 ..... dry
WINN PARISH
4-10-5w Bodcaw Lumber Co., Gulf Ref. Co. 1-A ..... dry

ARKANSAS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rig	Dlg.	Ttl.
Chicot	0	0	0	0	0	1	1
Clay	0	0	0	0	0	1	1
Cleburne	0	0	0	0	0	1	1
Cleveland	0	0	0	0	1	0	1
Columbia	0	0	0	0	0	1	1
Dallas	0	0	0	0	0	3	3
Drew	0	0	0	0	0	1	1
Hot Springs	0	0	0	0	0	1	1
Lawrence	0	0	0	0	1	0	1
Lincoln	0	0	0	0	0	1	1
Little River	0	0	0	0	1	0	1
Logan	0	0	0	0	0	1	1
Miller	0	0	0	0	0	1	1
Ouachita	0	0	0	0	1	1	2
Pike	0	0	0	0	0	3	3
Scott	0	0	0	0	0	2	2
Sebastian	0	0	0	0	0	1	1
Union	0	0	0	0	3	5	8
Van Buren	0	0	0	0	0	1	1
Washington	0	0	0	0	0	1	1
Yell	0	0	0	0	0	1	1
Total Aug.	0	0	0	0	7	27	34
Total July	6	500	5	0	10	21	31
Difference	6	500	5	0	3	6	3

GULF COAST FIELDS

TEXAS

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Gas	Rigs	Drlg.	Ttl.
Brenham	1	0	1	0	0	0	0
Barbers Hill	5	5,030	0	0	0	11	11
Damon Mound	1	30	0	0	0	1	1
Esperson	1	500	0	0	0	0	0
Hankamer	1	0	1	0	0	0	0
High Island	1	700	0	0	0	1	1
Hull	1	800	0	0	0	1	1
Humble	1	0	1	0	1	1	2
Lockwood	2	1,700	0	0	0	2	2
Lost Lake	0	0	0	0	0	1	1
Markham	1	200	0	0	0	0	0
Moss Bluff	2	0	2	0	1	2	3
Nash	0	0	0	0	0	1	1
Orange	1	0	1	0	0	0	0
Port Neches	0	0	0	0	0	1	1
Refugio	4	1,300	1	0	0	5	5
Miscellaneous	9	0	9	0	3	21	24
Ttl. Aug.	31	10,260	16	0	6	47	53
Ttl. July	36	5,182	18	3	7	47	54
Difference	5	5,078	2	3	1	0	1

SOUTH LOUISIANA

Bayou Blue	0	0	0	0	0	1	1
Bayou Choctaw	0	0	0	0	0	1	1
Hackberry	1	1,200	0	0	1	0	1
Edgerly	0	0	0	0	0	1	1
Jennings	0	0	0	0	0	1	1
Lake Barre	1	2,100	0	0	0	0	1
Lake Pelto	0	0	0	0	0	1	1
Leesville	1	1,400	0	0	0	0	0
Lockport	0	0	0	0	0	1	1
Sulphur	1	0	1	0	0	0	0
Sweet Lake	1	0	1	0	0	0	0
Vinton	1	0	1	0	0	1	1
Miscellaneous	2	0	2	0	2	9	11
Ttl. Aug.	8	4,700	5	0	3	17	20
Ttl. July	12	180	11	0	2	19	21
Difference	4	4,520	6	0	1	2	1
Ttl. Gulf Coast	39	14,960	21	0	9	64	73
Ttl. July	48	5,362	29	3	9	66	75
Difference	9	9,598	8	3	0	2	2

WELLS COMPLETED
BARBERS HILL—CHAMBERS COUNTY
Fitzgerald-Meadows, Humphreys Corp. 1000
Higgins, McAlbert Oil Co. 2-A..... 500
Smith, Sun Oil Co. 2..... 270
Smith, Sun Oil Co. 3..... 160
Wilburn, The Texas Company 6.....3100
Wells completed 5
Production 5030
BRENHAM—WASHINGTON COUNTY
Kramer, Deep Test Oil Co. 1..... abd
DAMON MOUND—BRAZORIA COUNTY
Hamon, D. C. Wellock 1..... 30
ESPERSON—LIBERTY COUNTY
Davis, Cranfill-Reynolds Co. 1..... 500
HANKAMER—LIBERTY COUNTY
Boyt, Gulf Production Co. 14..... abd
HIGH ISLAND—GALVESTON COUNTY
Cade, Yount Lee Oil Co. 21..... 700
HULL—LIBERTY COUNTY
Bashara fee, Bashara Oil Co. 2..... 800
HUMBLE—HARRIS COUNTY
H.E.&W.T., Rio Bravo Oil Co. 2..... abd
LOCKWOOD—FORT BEND COUNTY
George, Cullen & West 1.....1000
Lockwood & Sharp, Cullen & West 1-B 700
MARKHAM—MATAGORDA COUNTY
W. H. Gray, Ike Laughlin et al 1..... 200
MOSS BLUFF—LIBERTY COUNTY
McFaddin, Texas Gulf Sulphur Co. 5.. abd
McFaddin, Texas Gulf Sulphur Co. 6.. abd
ORANGE—ORANGE COUNTY
Kishi, Gulf Production Co. 1..... abd
REFUGIO—REFUGIO COUNTY
Pratt-Hewitt-Rooke, Houston Oil Co. 6 200
Lambert, T. P. Morgan 1..... abd
Ryals, Pearson Properties 3..... 120
W. J. Fox, United Prod. Corp. 1-B.... 980
Wells completed 4
Production 1300
Abandoned 1
MISCELLANEOUS TEXAS
Austin County—
John Fitzgibbons Sur., Schlecte, Pomerson & Cafferkey 1 ..... abd
Burleson County—
McMaddin Sur., Marek, F. Marek & Sons 1 ..... abd
Woolridge Sur., Mitchell, J. E. Stubblefield 1 ..... abd
Hardin County—
T.&N.O. Sur. No. 296, Reed, Plummer & McDaniels 1 ..... abd
Harris County—
L. Finn Sur., Krahn, Hattie Baldwin 1 abd
Matagorda County—
Shepherds Mott—Hawkins, H. C. Cockburn 3 ..... abd
Montgomery County—
Juergus, Price & Wilhite 2..... abd
Washington County—
J. H. Alcorn Sur., Hahn, Cord Oil Co. 1-A ..... abd
C. Clampit Sur., Graves, Yegua Oil Co. 1 ..... abd
Wells completed 9
Abandoned 9
SOUTH LOUISIANA
HACKBERRY—CAMERON PARISH
Erwin, J. G. Sutton 1 1200
LAKE BARRE—TERREBONNE PARISH
State, The Texas Company 6.....2100
SULPHUR—CALCASIEU PARISH
Fee, Union Sulphur Co. 747..... abd
LEESVILLE—LA FOURCHE PARISH
L.L.&E., The Texas Company 3..... 1400
SWEET LAKE—CAMERON PARISH
Sweet Lake, Magnolia Petroleum Co. 2 abd
VINTON—CALCASIEU PARISH
Matilda Gray, Vinton Petroleum Co. 7 abd

MISCELLANEOUS LOUISIANA

Iberia Parish—
Jefferson Island—Lake Peigneur, Jefferson Lake Oil Co. 19 ..... abd
Jefferson Island—Lake Peigneur, Jefferson Lake Oil Co. 20 ..... abd
LaFourche Parish—
Leesville—L. L. & E., The Texas Co. 3 ... 1400

Wells completed 2
Abandoned 2

MISSISSIPPI

Summary of Field Operations

	Comp.	Prod.	Dry*	Gas	Rig	Dig.	Ttl.
Adams	0	0	0	0	1	0	0
Clay	1	0	1	0	0	0	0
Clark	0	0	0	0	0	1	1
Hinds	2	0	0	2	0	2	2
Humphrey	0	0	0	0	0	1	1
Jasper	0	0	0	0	0	1	1
Jefferson	1	0	1	0	0	0	0
Monroe	0	0	0	0	0	2	2
Newton	0	0	0	0	0	1	1
Noxubee	0	0	0	0	0	1	1
Rankin	0	0	0	0	5	4	9
Scott	0	0	0	0	1	0	1
Warren	0	0	0	0	0	1	1
Webster	0	0	0	0	0	1	1
Winston	0	0	0	0	0	1	1
Yalobusha	1	0	1	0	0	0	0
Total Aug...	5	0	3	2	8	15	23
Total July..	5	0	2	3	4	19	23
Difference ..	0	0	1	1	4	4	0

*Gas production—Hinds County, 76,429,000 feet.

WELLS COMPLETED

CLAY COUNTY
16-15-5 Cantrell, Ohio Oil Co. 1 ..... dry
HINDS COUNTY
34-6n-1e Swearengen, Community Gas Co. 1 ..... gas
15-5n-1e Maley, Love Pet. Co. 3 ..... gas

Gas production 76,429,000
JEFFERSON COUNTY
14-10n-2w Phillips, Stokes-Cleve Love 1 dry
YALOBUSHA COUNTY
14-11-4 Blackmere, Collett-Carter Oil Co. 2 ..... dry

EAST TEXAS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rig	Dig.	Ttl.
Bowie	0	0	0	0	0	4	4
Camp	0	0	0	0	0	1	1
Cass	1	0	1	0	1	9	10
Harrison	1	0	1	0	3	4	7
Marion	0	0	0	0	0	3	3
Panola	1	0	1	0	4	5	9
Red River	0	0	0	0	0	2	2
Shelby	1	0	1	0	3	12	15
Total Aug...	4	0	4	0	11	40	51
Total July..	6	0	5	1	8	44	52
Difference ..	2	0	1	1	3	4	1

WELLS COMPLETED

CASS COUNTY
John Lick Survey, W. R. Caver, R. G. Baker 1 ..... dry
HARRISON COUNTY
E. Carroll Survey, Keys, Ryan Consolidated Petroleum Corp. 1 ..... dry
PANOLA COUNTY
B. C. Jordan Survey, Werner, Ark.-La. Pipe Line Co. 14 ..... dry
SHELBY COUNTY
M. M. Vann Survey, Sanford, Sloan Prospecting Co. 1 ..... dry
J. Bowlin Survey, Foster & Billingsley, W. A. Stephens 1 ..... dry

KENTUCKY FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Warren	1	0	0	1	0	1	1
Ohio	1	0	1	0	2	24	26
Daviess	3	70	2	0	0	20	20
Hancock	0	0	0	0	0	6	6
McLean	0	0	0	0	7	9	7
Hart	2	200	0	1	0	15	15
Henderson	3	25	2	0	0	0	0
Edmonson	0	0	0	0	0	1	1
Todd	0	0	0	0	0	1	1
Nelson	0	0	0	0	0	1	1
Hopkins	0	0	0	0	0	2	2
Union	2	0	2	0	0	0	0
Muhlenberg	1	0	0	1	0	0	0
Caldwell	1	0	0	1	0	0	0
Taylor	0	0	0	0	0	1	1
Carroll	0	0	0	0	0	1	1
Cumberland	0	0	0	0	0	1	1
Wayne	0	0	0	0	0	3	3
Estill	1	3	0	0	0	3	3
Lee-Owsley	0	0	0	0	0	1	1
Lawrence-Johnson	0	0	0	0	0	3	3
Magoffin	0	0	0	0	0	4	4
Madison	0	0	0	0	0	1	1
Ttl. Aug.	15	203	7	4	9	89	98
Ttl. July	18	943	5	6	9	92	101
Difference.	3	740	2	2	0	3	3

WELLS COMPLETED

OHIO COUNTY
Hartford—C. I. Coleman, B.B.&W. Oil 1 dry
DAVIESS COUNTY
Owensboro—Gretcher, Frank Cox & Co. 1 ..... dry
J. P. Howard, S. A. Cobb & Co. 2 .. dry
Lena Mayfield, Ellis & Ashley 3 70

Wells completed 3
Production 70
Dry 2

HART COUNTY
Horse Cave—Sego, Pearson Pet. 1 .... gas
Tom Caudill, Jess Watts & Co. 4 100

Wells completed 2
Production 100
Gas 1

HENDERSON COUNTY
Niagara—Sam King, Mecca Oil 2 25
George Fulkerson, Pearson Pet. 2 .. dry
Cr. Clay, Imperial Oil Products 1 .... dry

Wells completed 3
Production 25
Dry 3

UNION COUNTY
Morganfield—Proctor, Moyer & Co. 1.. dry
Greenwall, Shoup & Co. 1 ..... dry

Wells completed 2
Dry 2

MUHLENBERG COUNTY
Greenville—Jess Carey, Ellis & Young 1 gas

CALDWELL COUNTY
Princeton—McNeely, Standard Expltn. Synd. 3 ..... gas

ESTILL COUNTY
District 17—James Evans, Cox & Gabbard 6 3

WARREN COUNTY
Bowling Green—Unknown, Curtis & Jordon Oil & Gas 1 ..... gas

TENNESSEE FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Putnam	0	0	0	0	0	1	1
Smith	0	0	0	0	0	1	1
Warren	0	0	0	0	0	1	1
Clay	0	0	0	0	0	2	2
White	0	0	0	0	0	1	1
Dickson	0	0	0	0	0	2	2
Lincoln	0	0	0	0	0	2	2
Overton	0	0	0	0	0	2	2
Cheatham	0	0	0	0	0	1	1
Robertson	0	0	0	0	0	1	1
Ttl. Aug.	0	0	0	0	0	14	14
Ttl. July	0	0	0	0	0	14	14
Difference.	0	0	0	0	0	0	0

ROCKY MOUNTAIN AREA

WYOMING

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Big Horn	1	0	0	1	0	4	4
Carbon	0	0	0	0	1	9	10
Converse	0	0	0	0	1	4	5
Fremont	1	0	0	1	0	6	6
Hot Springs	0	0	0	0	0	2	2
Johnson	0	0	0	0	0	1	1
Laramie	1	0	1	0	0	0	0
Lincoln	0	0	0	0	0	2	2
Natrona	0	0	0	0	1	9	10
Niobrara	1	0	0	1	0	2	2
Park	1	250	0	0	2	9	11
Sheridan	0	0	0	0	0	1	1
Sweetwater	1	0	1	0	2	5	7
Sublet	0	0	0	0	0	7	7
Uinta	0	0	0	0	0	6	6
Washakie	0	0	0	0	0	1	1
Weston	5	1,075	0	0	3	13	16
Total August	11	1,325	2	3	10	81	91
Total July	9	30	3	0	13	85	98
Difference ..	2	1,295	6	3	3	4	7

WELLS COMPLETED

23-46- 64 Hugh Updike 2 200
14-46- 64 Bock, Lambie Oil Co. 7 100
14-46- 64 Chadron Osage Co. 13 500
23-46- 64 McCullough, Wytex Oil Co. 6 150
23-46- 64 Yellowstone Pet. Co. 1 125
18-13- 99 Tucker, Mountain Fuel Supply Co. ..... dry
17-57-101 Resolute Oil Co. 1 250
32-36- 65 Rohiff, Continental Oil Co. 3. gas
32-13- 66 Warren, Prairie O. & G. Co. 1 dry
36-34- 95 State, Texas Prod. Co. 1 .... gas
32-56- 97 Smith, Ohio Oil Co. 1 ..... gas

Wells completed 11
Production 1,325
Gas 19,000,000
Dry and abandoned 3

MONTANA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Carbon	2	10	0	1	2	4	6
Cascade	0	0	0	0	0	2	2
Fergus	0	0	0	0	0	5	5
Glacier	3	0	0	3	2	10	12
Hill	0	0	0	0	1	3	4
Judith Basin	0	0	0	0	0	2	2
Liberty	1	0	0	1	2	6	8
Pondera	0	0	0	0	0	3	3
Rosebud	0	0	0	0	0	3	3
Teton	0	0	0	0	1	4	5
Toole	2	410	0	0	4	10	14
Miscellaneous	0	0	0	0	1	20	21
Total August	8	420	0	5	13	72	85
Total July	13	95	4	6	14	71	85
Difference ..	5	325	4	1	1	1	0

WELLS COMPLETED

19-36-2w Nelson, Anaconda Pet. Co. 1.. 50
2-37-4w Farbo, Askalta Pet. Co. 1 360
7-36-4e Lange, G. G. Howard 1 ..... gas
2-35-5w Hughes, L. B. O'Neil, tr. 1 .. gas
2-35-5w Berger, L. B. O'Neil, tr. 1 .. gas
36-36-5w State, L. B. O'Neil, tr. 1 .... gas
11-7s-21 Montana Ind., Ohio Oil 1 10
2-7s-21 Souders, Ohio Oil Co. 1 ..... gas

Wells Completed 8
Production 420
Gas 69,500,000

NEW MEXICO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rig	Drlg.	Ttl.
Chaves	1	0	1	0	0	1	1
De Baca	0	0	0	0	0	2	2
Eddy	0	0	0	0	0	4	4
Harding	1	0	0	1	0	0	0
Lea	0	0	0	0	1	4	5
McKinley	0	0	0	0	0	7	7
Rio Arriba	0	0	0	0	0	3	3
San Juan	2	0	1	1	1	10	11
San Miguel	0	0	0	0	0	5	5
Torrance	1	0	0	1	0	1	1
Miscellaneous	0	0	0	0	1	10	11
Total August	5	0	2	3	3	47	50
Total July	1	0	0	1	5	49	54
Difference .	4	0	2	2	2	2	4

WELLS COMPLETED

12-7n-7e Kutchin, J. B. Witt O. & G. 1 gas
11-22-14 Roderick, Great Mesa Oil Co. 1 ..... dry
9-30-11 Lawson, Cross & Poole 1.... gas
34-21-30 Kerline, Kumbacca O. & G. Co. 1 ..... gas
27-13-24 Seibert, Warman Oil Trust 1 dry

Wells completed 5
Gas 3
Gas production 4,129,000
Dry and abandoned 2

COLORADO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Arapahoe	0	0	0	0	0	2	2
Elbert	0	0	0	0	0	3	3
Fremont	0	0	0	0	0	14	14
La Plata	0	0	0	0	0	3	3
Larimer	0	0	0	0	1	10	11
Las Animas	0	0	0	0	1	3	4
Moffat	0	0	0	0	2	2	4
Morgan	0	0	0	0	2	2	4
Rio Blanco	0	0	0	0	0	4	4
Routt	0	0	0	0	1	2	3
Weld	0	0	0	0	0	6	6
Miscellaneous	0	0	0	0	0	32	32
Total August	0	0	0	0	7	83	90
Total July	2	0	0	2	10	77	87
Difference ..	2	0	0	2	3	6	3

UTAH

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Total August	0	0	0	0	1	19	20
Total July	0	0	0	0	1	19	20
Difference ..	0	0	0	0	0	0	0

EASTERN FIELDS

Summary of Completed Work

Field—	Comp.	Prod.	Dry	Gas
Allegany	5	12	0	9
Bradford	7	4	0	0
Venango-Clarion	5	13	0	2
Butler-Armstrong	2	0	0	2
Middle Field	2	2	0	0
Tioga-Wayne	19	0	10	9
S. W. Pennsylvania	6	8	2	3
Southeast Ohio	15	142	3	5
West Virginia	28	7	6	20
Total August	89	188	21	41
Total July	110	177	14	57
Difference	21	11	7	16

Summary of Work Under Way

Field—	Rigs	Drlg.	Ttl.
Allegany	2	5	7
Bradford	3	7	10
Venango-Clarion	0	5	5
Butler-Armstrong	0	2	2
Middle Field	0	6	6
Tioga-Wayne	13	54	67
S. W. Pennsylvania	4	8	12
Southeast Ohio	9	26	35
West Virginia	11	39	50
Total August	42	152	194
Total July	36	149	185
Difference	6	3	9

WELLS COMPLETED

ALLEGANY FIELD
Fee, C. L. Wann et al 2 ..... pressure
Fee, C. L. Wann et al ..... pressure
Childs, First National Bank of Bolivar 13 10
Fee, George H. Zink 1
Fee, F. H. Stephan 1

Completions 5
Production 12
Pressure 2

BRADFORD FIELD
Bingham 369, D. W. Daly 82 1
Quintuple, Healey Petroleum Corp. 1
Fee, South Penn Oil Co. ..... pressure
Fee, Olean Petroleum Co. ..... pressure
Melvin, South Penn Oil Co. 1
Nesselson, J. E. Shaw 1
Borden, T. P. Thompson, Jr. ..... pressure

Completions 7
Production 4
Pressure 3

VENANGO-CLARION
Fulton, United Natural Gas Co. 4018 .. gas
Sporer, Raymond Sporer 1 ..... gas
Buzza, F. G. Youkers 7 7
Keely, S. R. Richards 9 1
Lauas, Charles I. Imel et al 9 5

Completions 5
Production 13
Gas 2

BUTLER-ARMSTRONG
Norton, Mars Production Co. 1 ..... gas
Behnig, Behnig & Co. 2 ..... gas

Completions 2
Gas 2

MIDDLE FIELD
Williams, Sunny Oil Co. 1
D and O, Irvine Oil Co. 12 1

Completions 2
Production 2

TIOGA-WAYNE
Bache, Williamsport Oil & Gas Co. ... dry
Wildton, Pa., Realty & Invesments Co. dry
Smith, Penn United ..... dry
Brown, Palmer B. Smith ..... dry
Carey, Wade & Thorn ..... dry
Roe, Weir & Thorn ..... dry
Smith, East Penn Development Co. .... dry
Bach, Williamsport Oil & Gas Co. .... dry
Bliss, Reserve Oil & Gas Co. ..... gas
Swarts, Williamsport Oil & Gas Co. .. dry
Mattoon, Crandall et al ..... gas
Hoover, Belmont Quadrange ..... gas
Wyss, Tri State and Bigelow ..... gas
Turner, unknown ..... gas
Ernst, Tri State Gas & Electric ..... dry
Glover, Burns Gas Co. ..... gas
Reep, Decker et al ..... gas
Swartout, Cunningham Natural Gas Co. gas
Maust, American Natural Gas Co. .... gas

Completions 19
Dry 10
Gas 9

SOUTHWEST PENNSYLVANIA COMPLETIONS
ALLEGHENY COUNTY
Minich, Lorish Oil Co. 1 3
BUTLER COUNTY
Harbison heirs, Charles Heck et al 1 .. dry
Johnson, Morrow Dunlap & Co. 1 ..... gas
GREENE COUNTY
Jacobs, Carnegie Natl. Gas Co. 1 ..... gas
Piatt, George Drake et al 1 ..... gas
SOMERSET COUNTY
Maust, American Natl. Gas Co. 1 ..... dry

SOUTHEAST OHIO COMPLETIONS
ATHENS COUNTY
C.&O.R.R., Waley & Baughman 1 ..... gas
JEFFERSON COUNTY
Moreland heirs, Sanders Oil Co. 1 ..... gas
KNOX COUNTY
Calopy, Kundtz, Hulse & Bell 1 ..... dry
MEDINA COUNTY
G. Packard, E. R. Edson & Son Co. 15. 10
G. Packard, E. R. Edson & Son Co. 16. 15
G. Packard, E. R. Edson & Son Co. 17. 75
Franks, E. R. Edson & Son Co. 22.... 12
Franks, E. R. Edson & Son Co. 23.... dry
MONROE COUNTY
Smith, Smith O. & G. Co. 1 10
MUSKINGUM COUNTY
Atha, Atha Oil Co. 5 ..... gas
Myers, Ohio Fuel Gas Co. 1 15
NOBLE COUNTY
Archibald, Chas. Knott et al 1 ..... dry
PERRY COUNTY
Sweeney, Hopewell Fuel & Gas Co. 1 . gas
WASHINGTON COUNTY
Edwards, Zwingle Brothers 1 5
Burgy, J. T. Hall et al 1 ..... gas

WEST VIRGINIA COMPLETIONS
BOONE COUNTY
Nelson heirs, Riverhead Gas Co. 11 ... gas
Little Coal Land Co., Owens Illinois Bottle Co. 13 ..... gas
CABELL COUNTY
Hans-Watts Realty Co., Wilson & Mowery 1 ..... gas
CALHOUN COUNTY
Evans, Ed Hess et al 1 ..... gas
M. E. Cemetery lot, Creek Barker et al 1 gas
Wilson, Park Bowser 2 ..... gas
Gainer, W. H. Bickel 1 ..... dry
Holbert, C. B. Lewis et al 1 ..... gas
Holbert, Creed Barker et al 2 ..... gas
Jackson, Bowser Oil Co. 4 ..... gas
GILMER COUNTY
Ralston, McCall Drlg. Co. et al 2 .... gas
Trout, McCall et al 2 ..... dry
HARRISON COUNTY
Coffman, Hope Con. & Ref. Co. 1 ..... dry
KANAWHA COUNTY
Tomkins, G. L. Cabot 5 ..... gas
LINCOLN COUNTY
Sweetland, L. R. Sweetland 1 ..... gas
Stowers, United Fuel Gas Co. 4337 .... gas
Thompson, Cambridge Gas Co. 1 ..... gas
Johnson, Martin Gas Co. 1 ..... gas
MARION COUNTY
Glover, Funk & Glover 3 ..... gas
MINGO COUNTY
Central Trust Co., United Fuel Gas Co. 4326 ..... gas
Brewer, Midway Gas Co. 1 ..... gas
Closten Est., United Fuel Gas Co. 1 ... dry
MONONGALIA COUNTY
Six, West Penn Gas Corp. 1 ..... gas
RITCHIE COUNTY
Exline, Mountain Iron & Sup. Co. 1 2
Bolton, H. L. Flanagan 1 5
WIRT COUNTY
Dick, W. A. Bickerstaff 1 ..... dry
WOOD COUNTY
Love, Love Bros. Oil Co. 1 ..... dry
WYOMING COUNTY
Ritter Lumber Co.. Ritter Lumber Co. 2 gas

CENTRAL OHIO

CENTRAL OHIO FIELDS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg	Ttl
Ashland	1	0	1	0	3	8	11
Lorain	1	0	0	1	4	6	10
Medina	5	40	3	0	2	3	5
Wayne	1	0	1	0	0	3	3
Holmes	0	0	0	0	0	1	1
Cuyahoga	0	0	0	0	0	1	1
Ashtabula	1	0	0	1	0	1	1
Richland	0	0	0	0	1	5	6
Coshocton	0	0	0	0	1	0	1
Summitt	0	0	0	0	1	2	3
Licking	0	0	0	0	1	4	5
Muskingum	2	4	0	1	4	11	15
Athens	4	60	0	3	1	5	6
Tuscarawas	0	0	0	0	2	3	5
Stark	7	0	0	7	8	25	33

Fairfield	1	0	0	1	0	2	2
Knox	0	0	0	0	0	4	4
Guernsey	1	0	0	1	1	8	9
Belmont	3	8	0	1	1	2	3
Gallia	0	0	0	0	0	2	2
Scioto	0	0	0	0	0	2	2
Pike	0	0	0	0	0	2	2
Morrow	1	0	1	0	0	0	0
Carroll	0	0	0	0	1	0	1
Total Aug.	28	112	6	16	31	100	131
Total July	52	135	15	29	25	85	110
Difference	24	23	9	13	6	15	21

WELLS COMPLETED
ASHLAND COUNTY

Orange—J. Barnhill, Ohio Fuel Gas 2-5,504 ..... dry

LORAIN COUNTY

Columbia—W. M. Klooz, McMillan & Co. 1 ..... gas

MEDINA COUNTY

Chatham—G. W. Packard, Edson Sons Co. 16 20
G. W. Packard, Edson Sons Co. 17 20
Marcus A. Frank, Edson Sons Co. 25 ..... dry
Homer—W. B. Schott, Ohio Fuel Gas 1-5,519 ..... dry
C. Fenstemaker, Commonwealth Gas Corp. 1 ..... dry

Wells completed 5
Production 40
Dry 3

WAYNE COUNTY

Plain—C. Alexander, Bryan & Co. 4 .... dry

ASHTABULA COUNTY

Conneaut—E. Layman, Schaeffer Bros. 1 gas

MUSKINGUM COUNTY

Washington—Martha Myers, Ohio Fuel Gas 1-5,514 4
Falls—Atha, W. H. Atha 4 ..... gas

Wells completed 2
Production 4
Gas 1

ATHENS COUNTY

York—Hocking Valley R. R., Vance S. Morgan 1 ..... gas
Eilee Stratton, Nelsonville Gas 1 60
Cheaspeake-Ohio R. R., Baughman, Waley & Co. 1 ..... gas
T. L. Young, Standard Natural Gas 1. gas

Wells completed 4
Production 60
Gas 3

STARK COUNTY

Lawrence—Samuel Myers, Wittmer Prop. trustee 1 ..... gas
Plain—Inks heirs, East Ohio Gas 1 ..... gas
Jackson—J. C. Easterday, Medford Oil & Gas 2 ..... gas
C. Price, Medford Oil & Gas 1 ..... gas
George L. Stockert, Ohio Fuel Gas 1-5,510 ..... gas
John L. Stockert, Ohio Fuel Gas 1-5,509 ..... gas
Lake Cable Co., Brendall & Co. 3..... gas

Wells completed 7
Gas 7

FAIRFIELD COUNTY

Richland—Clay H. Shaw, Pattson & Bishop 3 ..... gas

GUERNSEY COUNTY

Cambridge—W. A. Linton, W. A. Linton 1 ..... gas

BELMONT COUNTY

Somerset—G. and H. C. Butler, Washmuth & Callahan 1 3
William F. Simpson, McMullen & Co. 1 5
W. T. Lyne, Purdy, Peters & Co. 4.... gas

Wells completed 3
Production 3
Gas 1

MORROW COUNTY

Chester—C. R. Levering, H. E. Perkins 1 dry

LIMA FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Wood	1	10	0	0	0	1	1
Hancock	0	0	0	0	0	1	1
Sandusky	1	0	0	1	0	0	0
Seneca	2	0	0	2	0	5	5
Lucas	1	0	0	1	0	1	1
Ottawa	0	0	0	0	0	2	2
Hardin	0	0	0	0	2	1	3
Henry	1	0	0	1	0	0	0
Shelby	0	0	0	0	0	1	1
Wyandot	3	0	0	3	1	2	3
Darke	0	0	0	0	1	0	1
Huron	0	0	0	0	0	1	1
Paulding	4	0	0	4	0	0	0
Total Aug.	13	10	0	12	4	15	19
Total July	7	1	1	5	6	18	24
Difference	6	9	1	7	2	3	5

WELLS COMPLETED
WOOD COUNTY

Perrysburg—Catherine Smith, Geo. L. Haubert & Co. 6 10
Bloom—N. W. Nat. Gas, Ohio Oil 3 ... abd
E. H. Monasmith, Ohio Oil 16 ..... abd
T. J. Campbell fee, Ohio Oil 8, 9, 10. abd

Wells completed 1
Production 10
Abandoned 5

HANCOCK COUNTY

Portage—J. H. King, Ohio Oil 1, 9 .... abd
Allen—I. W. Whetstone, Ohio Oil 5 .... abd
Geo. B. Alban, Ohio Oil 23 ..... abd
Ben Bare, Ohio Oil 3 ..... abd
P. Alexander, Ohio Oil 30, 32, 44 ... abd
Liberty—Justice Chase, Ohio Oil 22, 23. abd
Peter Price, Ohio Oil 11 ..... abd
Mary A. Grubb, Ohio Oil 1, 7, 8, 9 .. abd
F. Stoker fee, Ohio Oil 4, 5, 10, 15, 20 abd

Abandoned 20

SANDUSKY COUNTY

Jackson—J. W. Miller, C. W. Sapp 1 ... gas

SENECA COUNTY

Hopewell—Sarah Grimes, J. H. Murphy & Sons 1 ..... gas
Liberty—R. M. Martin, McKinney Bros. 1 ..... gas

Wells completed 2
Gas 2

LUCAS COUNTY

Providence—Francis Oberly, Lake Shore & Southwestern Metal 1 ..... gas

HENRY COUNTY

Damascus—J. E. Hockman, Lake Shore & Southwestern Metal 1 ..... gas

WYANDOT COUNTY

Tymochtee—Josephine Long, Jones & Coyle 1 ..... gas
Geo. E. Lust, Murphy & Co. 1 ..... gas
John Brause, Unknown parties 1 ..... gas

Wells completed 3
Gas 3

PAULDING COUNTY

Benton—Lewis Snyder, Paulding Gas Co. 1 ..... gas
Unknown farm, Paulding Gas Co. 1 . gas
Unknown farm, Paulding Gas Co. 1 . gas
Paulding—Cook Dairy farm, Paulding Gas Co. 1 ..... gas

Wells completed 4
Gas 4

INDIANA FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs	Dig	Ttl
Huntington	0	0	0	0	0	2	2
Gibson	0	0	0	0	0	1	1
Pike	1	0	0	1	1	8	9
Vigo	1	0	1	0	0	0	0
Daviess	0	0	0	0	0	7	7
Sullivan	2	0	2	0	0	1	1
Warrick	1	0	1	0	0	1	1
Spencer	1	0	1	0	0	5	5
Perry	1	0	1	0	2	5	7
Marshall	0	0	0	0	1	1	2
Lagrange	0	0	0	0	0	1	1
Knox	1	0	0	1	0	3	3
Putnam	0	0	0	0	0	1	1
Posey	0	0	0	0	0	1	1
Laporte	0	0	0	0	0	1	1
St. Joseph	0	0	0	0	0	1	1
DeKalb	0	0	0	0	0	1	1
Rush	0	0	0	0	0	1	1
Floyd	0	0	0	0	0	1	1
Elkhart	0	0	0	0	1	0	1
Vandeburg	2	5	1	0	1	0	1
Hancock	0	0	0	0	0	1	1
Hamilton	0	0	0	0	0	1	1
Shelby	0	0	0	0	0	1	1
Dearborn	0	0	0	0	0	1	1
Dubois	0	0	0	0	0	1	1
Greene	1	0	0	1	0	1	1
Harrison	0	0	0	0	0	1	1
Crawford	0	0	0	0	1	0	1
Henry	0	0	0	0	0	1	1
Total Aug.	11	5	7	3	7	50	57
Total July	15	52	5	6	2	55	57
Difference	4	47	2	3	5	5	0

WELLS COMPLETED
JAY COUNTY

Wabash—J. H. Barr, H. Pontius 1, 2, 3, 4, 5 ..... abd

PIKE COUNTY

Clay—Claud Loveless, A. B. Bement 6. gas

VIGO COUNTY

Prairie Creek—Otis Wier, Ohio Oil 1.. dry

SULLIVAN COUNTY

Turman—C. L. Davis No. 2, Charles W. Scott 4 ..... dry
Hamilton—G. C. Shields, Wyman & Brown 1 ..... dry

Wells completed 2
Dry 2

WARRICK COUNTY

Boone—N. W. Hocker, Prairie O. & G. of Indiana 1 ..... dry

SPENCER COUNTY

Grass—T. Lammers, T. Brandebury 1.. dry

PERRY COUNTY

Clark—Frank Dalassa, J. H. McClurkin 1 ..... dry

KNOX COUNTY

Busseron—Blann estate, Gardner Petroleum 2 ..... gas

VANDEBURG COUNTY

Center—George Hornby, Vandeburg Oil Co. 5 5
Scott—William Riggs, Peoples Petroleum 1 ..... dry

Wells completed 3
Production 5
Dry 1

GREENE COUNTY

Washington—S. Kauffman, A. R. Morris & Co. 1 ..... gas

ILLINOIS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Clark	0	0	0	0	0	2	2
Coles	0	0	0	0	0	1	1
Edgar	0	0	0	0	0	1	1
Crawford	1	20	0	0	2	1	3
St. Clair	0	0	0	0	0	2	2
Randolph	0	0	0	0	0	2	2
Monroe	1	0	1	0	0	2	2
Washington	0	0	0	0	0	1	1
Boone	0	0	0	0	0	1	1
Madison	0	0	0	0	0	2	2
Marion	0	0	0	0	0	1	1
Macoupin	0	0	0	0	0	1	1
Jefferson	0	0	0	0	0	1	1
Ttl. Aug.	2	20	1	0	2	18	20
Ttl. July	4	0	4	0	2	19	21
Difference	2	20	3	0	0	1	1

WELLS COMPLETED
CRAWFORD COUNTY

Montgomery—A. E. Duncan, W. C. McBride, Inc. 1 20
Oblong—McCrillis, The Ohio Oil 3 .... abd
Southwest—J. W. Roderick No. 2, The Ohio Oil 4 ..... abd

Wells completed 1
Production 20
Abandoned 2

LAWRENCE COUNTY

Dennison—William Combs, The Ohio Oil 2, 3 ..... abd
Ellen Lutz, The Ohio Oil 3 ..... abd
H. A. Seed, Ohio & Silurian Oil 6 .. abd
Petty—R. M. Hardacre, The Ohio Oil 10 ..... abd
Clinton Thorn, The Ohio Oil 14 .... abd
Bridgeport—W. E. Finley, The Ohio Oil 14 ..... abd

Abandoned 7

ST. CLAIR COUNTY

Sugar Loaf—Robert Rudolph, Leader Oil & Gas 1 ..... abd
E. Propper, Jac. Schellhardt 1, 2 ... abd
Fred Kelley, L. G. Blackman & Co. 1 abd
Felix Zeller, W. A. Minges 1 ..... abd
Charles LaCroix, Blk. 8, William J. Abbott & Co. 1 ..... abd
Charles LaCroix, Blk. 9, William J. Abbott & Co. 1 ..... abd
Laura Miller, William J. Abbott & Co. 1 ..... abd
Luther Smith, W. O. Whaley 1 .... abd

Abandoned 9

MONROE COUNTY

Calumbia—Charles Grasser, J. E. Ellis & Co. 1 ..... dry

MICHIGAN FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs	Dig	Ttl
Muskegon	2	0	2	0	0	0	0
Isabella	3	2,520	0	1	24	35	59
Midland	1	200	0	0	10	14	24
Clare	0	0	0	0	3	2	5
Mecosta	0	0	0	0	1	0	1
Lake	0	0	0	0	0	2	2
Cass	0	0	0	0	0	2	2
Kent	0	0	0	0	1	2	3
Ottawa	0	0	0	0	0	2	2
Oceana	0	0	0	0	1	6	7
Bay	0	0	0	0	1	1	2
Mason	0	0	0	0	0	4	4
Newyago	0	0	0	0	0	5	5
Emmett	0	0	0	0	0	1	1
Eaton	0	0	0	0	1	0	1
Kalkasky	0	0	0	0	1	1	3
Monroe	0	0	0	0	0	2	2
Lenawee	0	0	0	0	0	2	2
Washtenaw	0	0	0	0	0	1	1
Iosco	0	0	0	0	2	0	2
Missaukee	0	0	0	0	1	0	1
Delta	0	0	0	0	1	0	1
Montmorency	0	0	0	0	1	0	1
Sanilac	0	0	0	0	3	0	3
Gratiot	0	0	0	0	3	3	6
Shiawassee	0	0	0	0	2	2	4
Livingston	0	0	0	0	1	1	2
Allegan	0	0	0	0	0	6	6
Leelanu	0	0	0	0	1	0	1
Osceola	0	0	0	0	2	0	2
St. Clair	0	0	0	0	1	0	1
Genessee	0	0	0	0	1	0	1
Cheboygan	0	0	0	0	0	1	1
Kalamazoo	0	0	0	0	0	1	1
Huron	0	0	0	0	1	0	1
Wayne	2	0	0	2	0	3	3
Oakland	0	0	0	0	0	1	1
Total Aug.	8	2,720	2	3	63	100	163
Total July	7	2,150	2	3	64	103	167
Difference	1	570	0	0	1	3	4

WELLS COMPLETED
MUSKEGON COUNTY

Fruitland—Feicke, H. and W. Feicke 1 dry
Fruitport—Frank Jonio, W. E. Lang 1.. dry

Wells completed 2
Dry 2

ISABELLA COUNTY

Chippewa—S. T. Mumy, Goll-Good Joint Venture 3 20
Vernon—George Woods, George Talbot & Co. 1 2500
Broomfield—Willie, Pure Oil 3 ..... gas

Wells completed 3
Production 2520
Gas 1

MIDLAND COUNTY

Greendale—A. Bernard, Pure Oil 1 200

WAYNE COUNTY

Van Buren—Fee, R. J. Coykenall 2 .... gas
Seeger, G. E. LeVeque 1 ..... gas

Wells completed 2
Gas 2

GAS FOR NEW YORK LIKELY TO BE DELAYED

(Continued from Page 58)

mediate requirements for an additional large supply. A coke oven by-products gas plant at Hunt's Point, completed several months ago, and a water gas plant under construction at Hunt's Point will care for the anticipated increase in consumers' demand for several years. A definite proposal for the purchase of natural gas therefore would have to take into account the calculated requirements of the metropolitan area three to five years from now; the capital cost of a new artificial gas plant to provide the same service, the interest charges, depreciation, maintenance and operating expenses, and the rates at which the gas could be sold.

Assuming that the generally adopted practice of mixing the natural gas with manufactured gas would be followed, the greater heat content of the mixed product, compared with the amount of heat derived from the combustion of manufactured gas alone would necessitate, it is believed, a revision of rates such as the Peoples Gas, Light & Power Co. of Chicago has planned in preparation for providing its customers with a mixture of artificial gas with natural gas from the Texas Panhandle.

Question of Rates

The plans in Chicago have not gone entirely smoothly, however, as the city has decided to intervene in the hearing before the Illinois Commerce Commission on the rates proposed by Peoples Gas, an Insull company. The city is asking an appraisal of all the company's properties and examination of contracts and documents with reference to blending of natural gas with manufactured gas. The terms proposed in Chicago, to go into effect on October 1 if approved by the commission, provide for a reduction in the British thermal unit general rate by 3.5 per cent, in the optional rate for large users by 3.04 per cent and in house heating rates by 22 per cent. Annual savings of $1,434,000 to customers are calculated by the company under the proposals.

A change from the present New York gas rates of $1.15 for each 1,000 feet for the first 100,000 feet of gas per meter per month to a new rate based on the British thermal unit content would be essential because of the greater richness of the blended gas, according to engineers, but at the same time the company would wish, it is assumed, to provide increased heat value at lesser cost, thereby reducing the charges to customers. The wholesale price of natural gas to the company, engineers figure, would have to be such that noteworthy savings to customers could be effected.

New Line Necessary

From the standpoint of the Columbia system it would be necessary to build an entirely new pipe line from the Appalachian Field to New York City. Because of the mountainous country to be traversed, the problem of keeping an adequate pressure on the gas and the necessity of providing an uninterrupted supply, it is believed that the company would build a twin line, comprising two 20-inch pipes costing about $25,000 a mile each. A daily supply of 200,000,000 feet could be handled through the two lines, and in case of temporary damage to one line, 100,000,000 feet would still be available.

Consolidated Gas has a present productive capacity of 266,000,000 feet a day, a holder capacity, exclusive of relief holders, of 175,000,000 feet, and a distribution system including 3,440 miles of mains. Most of the principal mains in service could take straight natural gas or a blended product without alteration. Principal expenses in the purchase of natural gas would be the provision of mixing apparatus and additional holder capacity.

Average daily consumption of gas in the metropolitan area is now about 116,500,000 feet, but this is subject to wide fluctuation because of seasonal and daily factors. The system therefore maintains a capacity substantially in excess of twice the average daily consumption in order to provide uninterrupted service, so that there is no need for haste with respect to preparations for a large additional supply.

Several more sections of western and northern New York State are likely to be provided with natural gas long before New York City. The present shut-in capacity of the new Tioga Field in western New York and northwestern Pennsylvania is about 300,000,000 feet daily, and the field's limits have not been found. Only a small part of shut-in capacity can be put on the lines, however, and joint plans of Standard Oil of New Jersey and Columbia Gas & Electric, principal interests in the new field, call for nearby markets. New York City thus can expect natural gas supply only from the more extensive gas fields of West Virginia or Kentucky, many persons in the industry believe.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Report for Month of July

Runs

	Month (bbls.)	Dy.av. (bbls.)
Prairie P. L. Co.*	554,900	17,900
Gulf P. L. Co.	1,675,278	54,041
Texas P. L. Co.	778,762	25,121
Magnolia P. L. Co.	1,944,019	62,710
Empire P. L. Co.	2,454,362	79,173
Cosden P. L. Co.	634,873	20,480
Stanolind P. L. Co.*	3,106,200	100,200
Oklahoma P. L. Co.	2,277,149	73,456
Other lines*	6,138,000	198,000
Total July	19,563,543	631,081
Total June	20,005,456	666,849
Difference	441,908	35,767

Shipments

Prairie P. L. Co.	2,626,499	84,726
Gulf P. L. Co.	1,674,036	54,001
Texas P. L. Co.	890,766	28,412
Magnolia P. L. Co.	1,548,704	49,958
Empire P. L. Co.	2,607,823	84,123
Cosden P. L. Co.	744,909	24,029
Stanolind P. L. Co.	3,738,197	120,587
Oklahoma P. L. Co.	2,353,122	75,907
Other lines*	6,975,000	225,000
Total July	23,149,033	746,743
Total June	22,426,572	747,552
Difference	722,461	809

Stocks

Prairie O. & G. Co.*	37,460,000
Gulf P. L.-Gypsy Oil Co.	9,121,261
The Texas Company	3,566,327
Magnolia Petroleum Co.	6,642,981
Empire P. L. Co.	4,826,727
Mid-Continent Pet. Corp.	3,662,877
Stanolind Crude Oil Pur. Co.*	18,102,000
Oklahoma P. L. Co.	2,235,653
Carter Oil Co.	7,954,854
Other lines*	17,540,000
Total July	111,096,680
Total June	114,630,501
Difference	3,533,823

*Estimated.

EASTERN PIPE LINE REPORT FOR MONTH OF AUGUST

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for July and August:

	July, 1931	Aug., 1931
Nat. Transit	133,220.85	121,756.52
S. W. Pa. P. L.	71,451.01	64,160.09
Eureka P. L.	289,307.41	274,238.96
Buckeye P. L. (Macksburg)	243,334.42	225,597.43
Buckeye P. L. (Cleveland)	11,493.40	11,149.05
Buckeye P. L. (Lima, etc.)	86,516.97	70,669.93
Indiana P. L.	2,402.03	2,600.03
Cumberland P. L.	164,965.59	146,239.07
N. Y. Transit	25,816.95	26,817.39
Tidewater P. L.	25,578.82	23,868.07
Pure Oil	184,069.94	217,524.86
Stoll Oil Ref.	.....	58,043.70
Bradford Transit	324,264.05	365,931.05
Total	1,572,421.44	1,596,596.16
Daily average	50,723.24	51,503.10

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for July and August:

	July, 1931	Aug., 1931
Nat. Transit	545,139.48	572,837.36
S. W. Pa. P. L.	444,267.19	470,477.82
Eureka P. L.	389,088.42	403,172.50
Buckeye P. L. (Macksburg)	242,031.51	269,652.58
Buckeye P. L. (Cleveland)	1,950.36	2,191.00
Buckeye P. L. (Lima, etc.)	1,906,782.68	1,965,006.60
Indiana P. L.	975,959.98	1,146,141.55
Cumberland P. L.	115,573.69	97,247.87
Southern P. L.	71,576.50	67,327.53
N. Y. Transit	173,789.42	184,455.53
Northern P. L.	181,895.41	194,193.95
Tidewater P. L.	403,796.82	557,862.79
Pure Oil	189,026.80	233,792.38
Bradford Transit	482,852.88	365,531.21
Tuscarora Dev.	436,907.19	479,254.08
Total	6,560,609.33	6,949,150.80
Daily average	211,632.56	224,166.16

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of July and August:

	July, 1931	Aug., 1931
Nat. Transit	657,462.02	709,462.64
S. W. Pa. P. L.	436,536.86	437,987.83
Eureka P. L.	1,741,116.21	1,604,025.48
Buckeye P. L. (Macksburg)	325,616.77	304,901.35
Buckeye P. L. (Cleveland)	38,005.67	41,579.11
Buckeye P. L. (Lima, etc.)	3,110,772.07	2,982,405.14
Indiana P. L.	527,931.01	507,328.32
Cumberland P. L.	636,001.14	621,498.00
Southern P. L.	214,438.42	206,524.98
N. Y. Transit	101,414.97	117,899.23
Northern P. L.	218,880.21	247,413.61
Tidewater P. L.	1,009,357.89	862,114.87
Pure Oil	424,712.11	410,582.85
Tuscarora	12,766.39	12,233.66
Bradford Transit	114,337.03	126,446.26
Total	9,569,849.78	9,192,457.33
Decrease	333,499.75	377,392.45

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of July and August, showing gross stocks of the above fields:

	July, 1931	Aug., 1931
Pennsylvania	3,439,601.00	3,104,338.44
Lima	787,866.84	711,235.35
Kentucky	646,541.50	632,038.36
Mid-Continent	4,264,314.47	4,343,664.94
Illinois	18,123.10	.....
Michigan	413,402.87	401,179.74
Total	9,569,849.78	9,192,457.33

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1928	1929	1930	1931
Jan.	52,904	51,749	75,907	53,939
Feb.	57,002	51,833	79,256	55,163
Mar.	57,485	54,252	76,688	54,331
Apr.	56,812	53,444	84,536	54,914
May	62,067	59,902	70,546	53,344
June	58,230	58,833	75,430	54,110
July	57,144	56,087	68,921	50,723
Aug.	57,745	56,087	54,291	51,503
Sept.	55,487	67,315	56,595	.....
Oct.	58,100	76,092	53,179	.....
Nov.	53,865	74,831	52,532	.....
Dec.	52,035	74,562	53,999	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1928	1929	1930	1931
Jan.	146,465	165,731	217,623	175,359
Feb.	167,368	159,387	224,355	183,494
Mar.	158,883	161,474	228,846	189,508
Apr.	172,935	169,737	241,845	191,450
May	180,559	184,281	248,383	199,247
June	188,024	185,404	234,401	221,156
July	189,470	194,763	207,094	211,432
Aug.	192,853	194,946	205,506	224,166
Sept.	194,138	201,214	193,999	.....
Oct.	176,000	191,367	157,675	.....
Nov.	176,893	202,743	146,638	.....
Dec.	173,572	186,257	143,001	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1929	1930	1931
Jan.	7,596,564	12,220,045	11,831,092
Feb.	8,738,825	12,991,561	11,506,489
Mar.	9,002,058	13,247,217	11,012,162
Apr.	8,978,172	13,223,961	11,044,487
May	8,903,566	13,052,953	10,728,239
June	8,921,275	13,396,855	9,903,349
July	9,211,565	13,268,562	9,569,849
Aug.	9,440,643	13,047,051	9,192,457
Sept.	9,443,067	12,812,018	.....
Oct.	9,441,101	12,437,555	.....
Nov.	9,868,538	11,851,280	.....
Dec.	11,253,953	11,751,952	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, September 1	529,505.86
Runs from wells	452,755.49
Other receipts	26,242.47
Regular deliveries	351,280.47
Other deliveries	178,235.56

The amount of Illinois oil run by the Tidewater Pipe Co. in August was 23,868.07 bbls. Deliveries were 41,950.59 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1931—	Runs	Deliveries
August	476,623.56	393,231.60
1930—		
January	543,337.95	498,293.93
February	548,416.32	414,536.59
March	631,944.49	469,119.53
April	530,074.22	509,304.60
May	605,147.37	504,069.84
June	572,662.57	468,658.81
July	604,529.45	388,454.47
August	594,642.13	376,742.43
September	457,001.11	371,691.63
October	478,442.12	320,688.73
November	432,794.43	355,403.12
December	556,418.78	363,719.55
1931—		
January	468,429.04	669,573.19
February	429,284.54	461,262.85
March	424,638.23	356,663.26
April	421,814.98	282,532.65
May	433,231.80	322,513.95
June	510,805.78	320,258.13
July	520,009.38	289,219.05

Tidewater Pipe Co., Ltd., also delivered in August, 126,617.13 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
August	7,418	8,742	33,968	21,226	5,258	81,612	.....	.....	.....	.....	97	81,710
September	6,300	6,400	25,650	13,400	9,567	61,267	.....	.....	.....	.....	1,433	62,700
October	2,514	2,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516
November	8,247	6,223	32,800	17,733	4,000	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,322	30,645	9,678	3,580	53,742	.....	.....	.....	.....	4,645	58,387
January	8,387	6,613	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871
February	5,787	3,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,385	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900
May	4,452	2,064	19,903	11,226	6,258	44,903	.....	.....	.....	.....	2,355	47,258
June	4,267	.....	25,100	6,333	3,500	39,200	.....	.....	.....	.....	.....	39,200
July	6,774	1,194	24,612	11,065	9,902	53,548	.....	.....	.....	.....	1,335	54,903

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
August	39,032	4,484	145,613	33,355	25,097	247,581	8,419	9,323	3,543	3,000	29,300	276,871
September	38,867	5,533	150,933	34,500	25,567	255,400	6,433	12,334	.....	3,800	22,467	280,867
October	19,839	11,742	146,194	35,355	26,947	240,027	6,065	7,067	2,774	3,545	19,451	259,548
November	39,633	35,900	134,833	36,467	24,647	261,300	3,467	7,366	.....	1,767	11,600	272,900
December	31,419	14,033	133,774	32,839	23,774	234,839	6,290	10,613	2,097	290	19,290	254,129
January	17,613	13,519	154,225	32,903	30,612	248,871	2,032	11,677	2,097	3,097	18,903	267,774
February	31,331	16,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	13,935	141,160	26,290	21,129	229,161	4,065	2,580	.....	1,968	8,613	246,774
April	25,000	10,533	105,000	29,767	35,533	215,833	2,733	3,400	.....	.....	6,133	221,966
May	30,129	8,774	107,000	25,452	26,710	198,065	.....	2,000	.....	.....	2,000	200,065
June	30,967	10,333	111,767	27,000	30,833	200,500	3,300	5,500	2,167	1,333	12,300	212,800
July	26,387	11,226	104,678	29,323	21,773	193,387	6,903	7,419	4,194	.....	18,516	211,903

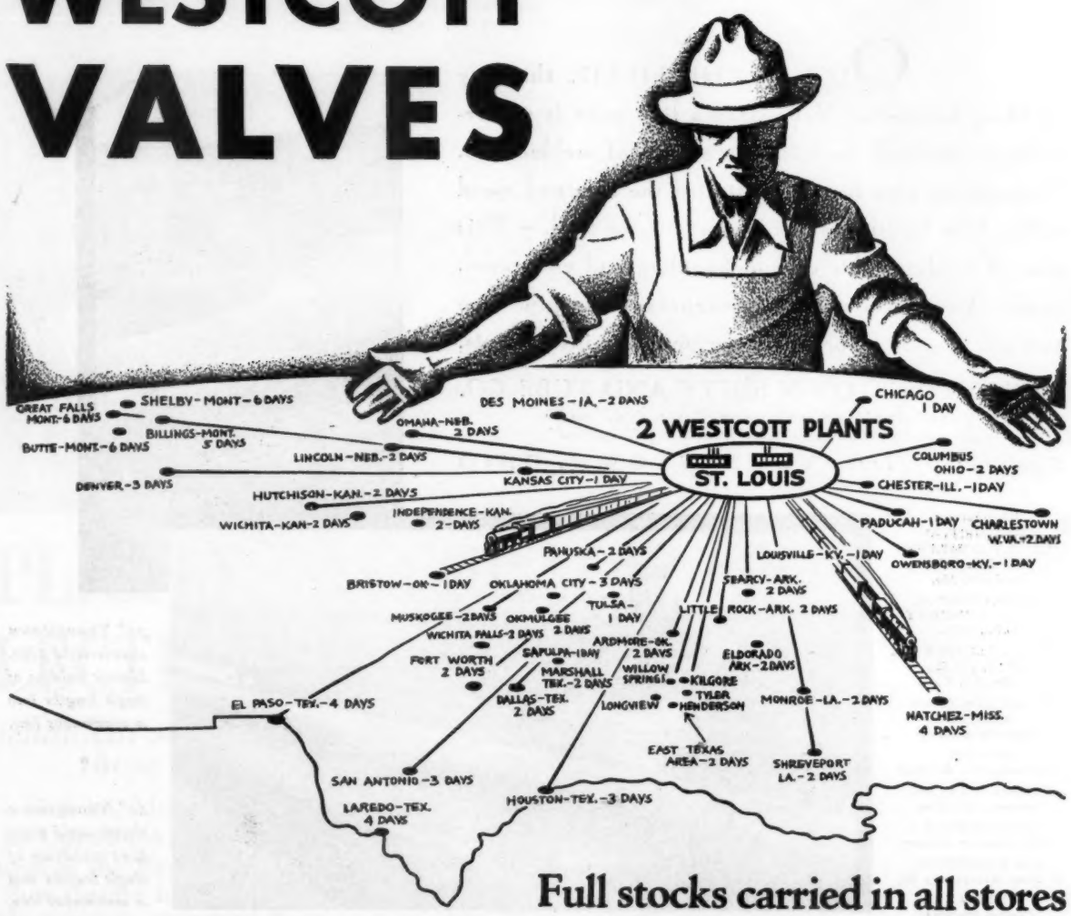
GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1930—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
August:	Month	18,770,466	17,162,934	25,069,598	3,491,530	1,700,102	2,151,120	3,193,241	3,417,000	74,955,191
	Daily average	605,499	553,614	808,696	112,630	54,842	69,391	103,011	110,226	2,417,909
September:	Month	17,984,306	16,509,120	23,111,822	3,405,510	1,583,280	2,008,040	3,239,010	3,396,000	71,237,108
	Daily average	599,477	550,304	770,394	113,517	52,776	66,935	107,967	113,200	2,374,570
October:	Month	18,244,053	16,632,523	23,626,553	3,517,913	1,636,552	2,142,885	3,225,550	3,637,000	72,707,029
	Daily average	588,518	536,533	762,147	113,223	52,792	69,125	104,050	117,000	2,345,388
November:	Month	18,169,459	14,941,770	22,035,222	3,459,330	1,557,870	2,136,948	3,957,100	3,222,000	68,419,699
	Daily average	603,648	498,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,656
December:	Month	17,786,728	15,057,103	21,810,259	3,432,661	1,590,951	2,167,594	3,113,462	3,325,000	68,281,999
	Daily average	573,765	485,713	703,560	110,731	51,331	69,598	100,602	107,355	2,202,645
1931—										
January:	Month	16,485,738	14,850,953	20,019,212	3,432,475	1,574,955	2,125,037	2,966,142	3,374,000	64,828,512
	Daily average	531,795	479,063	645,781	110,725	50,805	68,872	95,682	108,839	2,091,565
February:	Month	14,930,932	13,531,930	18,957,571	3,341,016	1,402,492	1,981,616	2,747,024	3,139,000	60,021,631
	Daily average	533,248	483,285	677,057	119,322	50,089	70,772	98,108	111,750	2,143,629
March:	Month	16,364,542	15,627,687	22,453,619	3,498,598	1,469,245	2,061,576	2,898,035	3,374,000	68,747,402
	Daily average	527,898	536,377	724,310	112,858	47,395	66,502	93,485	108,839	2,217,665
April:	Month	15,803,541	15,815,990	20,837,717	3,281,880	1,413,320	2,008,021	2,901,870	3,273,000	73,384,239
	Daily average	526,785	559,255	694,257	109,396	47,074	66,934	96,729	109,100	2,412,808
May:	Month	16,448,960	17,333,567	23,703,654	3,341,366	1,446,274	2,232,568	3,098,419	3,190,000	76,800,138
	Daily average	530,612	559,157	824,034	107,786	46,654	72,018	99,949	102,900	2,445,166
June:	Month	15,641,436	16,678,300	23,129,533	3,175,440	1,344,460	1,850,511	2,986,200	3,166,000	73,982,970
	Daily average	521,381	555,940	971,327	105,848	44,815	61,684	99,540	105,533	2,466,099
July:	Month	16,093,322	16,467,789	23,827,213	3,090,762	1,387,430	1,715,730	2,905,909	3,341,000	73,729,155
	Daily average	519,139	531,219	1,091,200	99,702	41,530	55,345	93,729	107,774	2,539,650
Total 12 months		202,663,783	193,609,016	295,647,403	40,521,932	18,005,821	24,581,606	36,237,263	39,337,000	850,104,373

LESS-CAR-LOAD-(L. C. L.) FREIGHT SERVICE

BRINGS FAST DELIVERY TO YOU, OF WESTCOTT VALVES



Full stocks carried in all stores of the Continental Supply Company, and at the

WESTCOTT VALVE CO.
EAST ST. LOUIS, ILLINOIS

The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879.

Easy WELDING

OUT IN THE FIELD, the easy welding feature of Youngstown line pipe is universally recognized. In mile after mile of welded line, Youngstown pipe has demonstrated the ease and speed with which lengths can be welded in the field. ★ This ease of welding, plus ease of handling and endurance, makes Youngstown pipe unsurpassed for pipe line service. Use it to protect your pipe line investments.

THE YOUNGSTOWN SHEET AND TUBE CO.

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

General Offices: YOUNGSTOWN, OHIO

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20" Youngstown electric-weld pipe. Electric welding of single lengths into a continuous line.

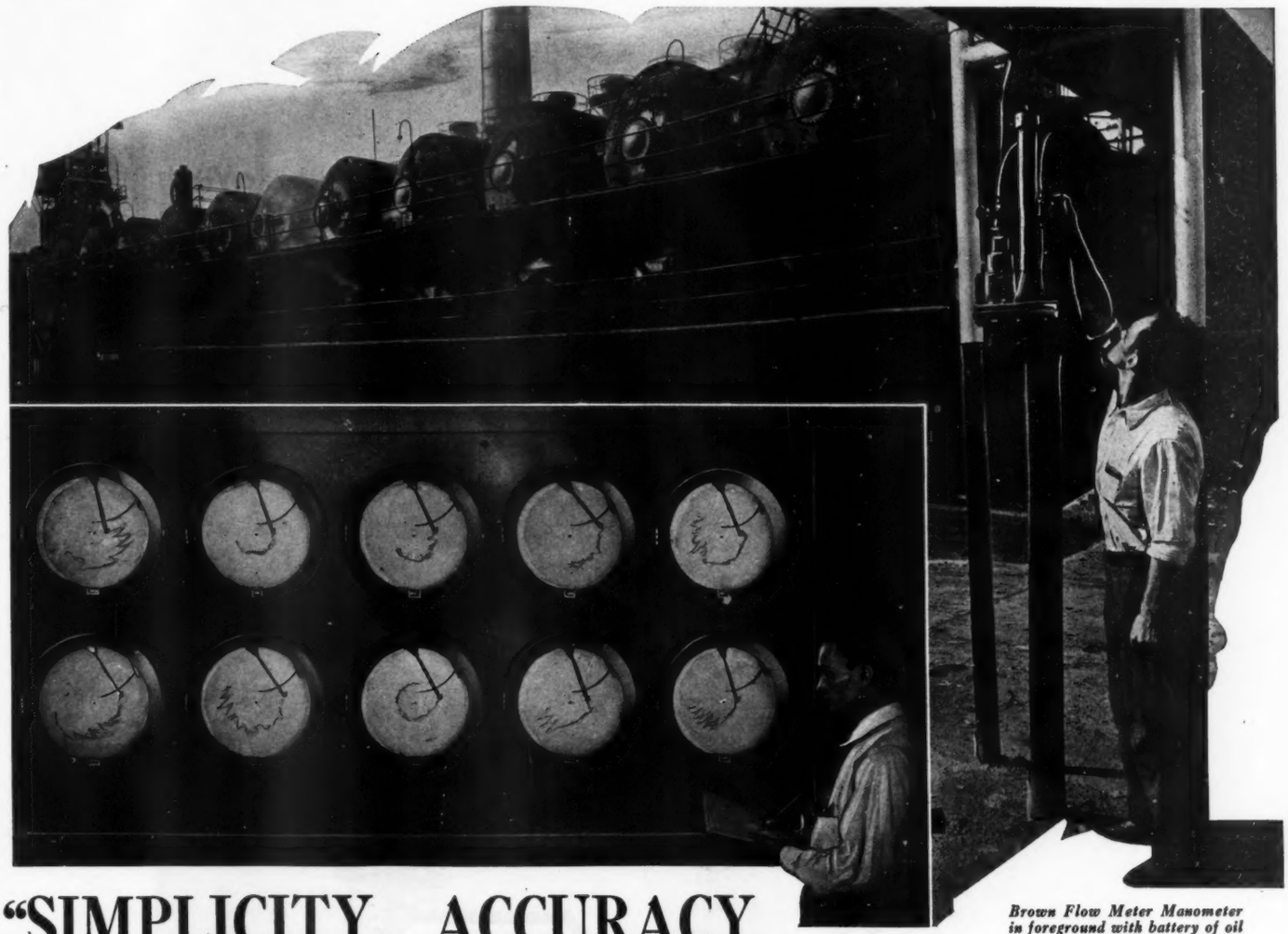
•

20" Youngstown electric-weld pipe. Gas welding of single lengths into a continuous line.

FROM ORE MINE TO GAS LINE

YOUNGSTOWN

Visit our booth, No. 134, at the American Gas Association Convention, Atlantic City, October 12-16



Brown Flow Meter Manometer in foreground with battery of oil stills in the background.

Brown Recording Electric Flow Meters measuring the steam output and distribution at the El Dorado, Ark., plant of the Lion Oil Refining Company.

"SIMPLICITY, ACCURACY and ELECTRICAL TRANSMISSION"

Mechanical superintendent of oil refinery praises these modern flow meter features

MR. L. G. Dufilho, Mechanical Superintendent for the Lion Oil Refining Company, El Dorado, Ark., praises the simplicity, accuracy and electrical transmission features of the Brown Electric Flow Meter. The above illustration shows ten of these flow meters in service at this plant. In another picture is seen one of the Brown Manometers operating these instruments, while in the background appears a battery of huge oil refining stills. These instruments are used for systematically checking steam distribution throughout the plant, as well as for checking boiler output. Mr. Dufilho significantly adds to the above statement, the following words: "We are well satisfied with the instruments and the courtesy of their representatives." You, too, will find complete satisfaction with this unusual flow meter. Write for information or quotation.

THE BROWN INSTRUMENT COMPANY
4488 Wayne Ave., Philadelphia, Pa.
Branches in 22 principal cities.

To Measure is to Economize

Brown Electric Flow Meter

on the Inductance Bridge Principle

AMERICAN STEEL & WIRE COMPANY WIRE LINES

Where Dependability is Vital

In the oil fields—where uninterrupted service is vital—the selection of wire lines deserves more than ordinary care. Because of their proved dependability and greater economy, most operators specify American Steel & Wire Company Wire Lines. It will pay you to know why in detail. Our engineers, in the oil country, will gladly assist you in solving your wire line problems.

By using a Flattened Strand Line for Rotary Drilling, a much larger per cent of the surface of the strand is put in contact with the sheave or drum, in fact, the wearing surface is from 100 to 150 per cent greater than in lines of other constructions.

1831 100 YEARS OF PROGRESS IN WIRE MAKING 1931

AMERICAN STEEL & WIRE COMPANY

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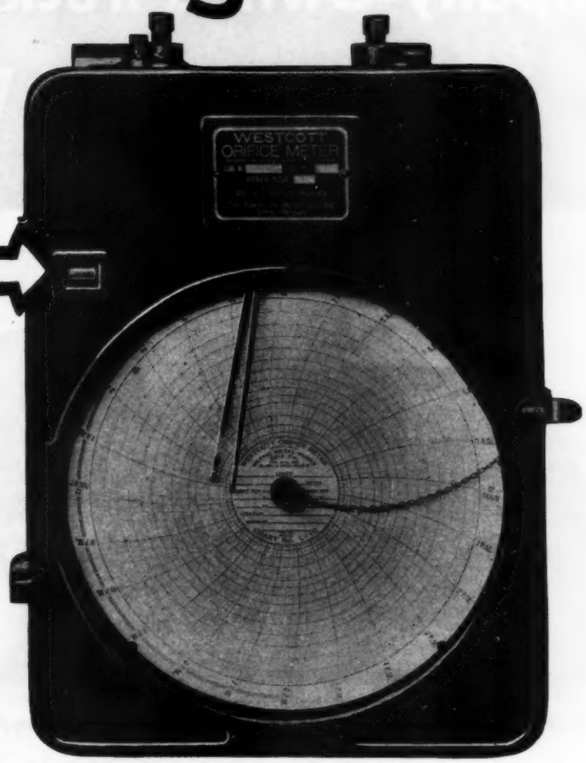
Index Readings

of metered volume



automatically computed for variations in pressure and flow

FOR the first time in the history of gas and steam metering, a practical mechanical integrating instrument is offered which combines the following advantages:

Direct index readings of metered volume, computed for *variations in pressure*, and *variations in rate of flow;*

Chart record of pressure and of rate of flow;

An integrating principle that does not depend on the operation of clutches, on the coefficient of friction of working parts, or on the reversible motions of cams or levers.

The Metric Integrating Orifice Meter accurately measures gas, air, steam or liquids. It is not necessary to regulate the pressure in order to assume that it is constant. For this reason these Meters are theoretically correct in principle and actually correct in practice.

Bulletin E-16 describes the Metric Integrating Orifice Meter and also the Metric Integrating Flowmeter for gas or steam at constant pressure, or liquids.

METRIC METAL WORKS
ERIE, PENNSYLVANIA
Duplicate Thomas Rotary Gas and Counter Meters

AMERICAN METER COMPANY
INCORPORATED
The World's Largest Manufacturers of Gas Meters and Allied Apparatus
ESTABLISHED 1836

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MEASUREMENT ENGINEERS
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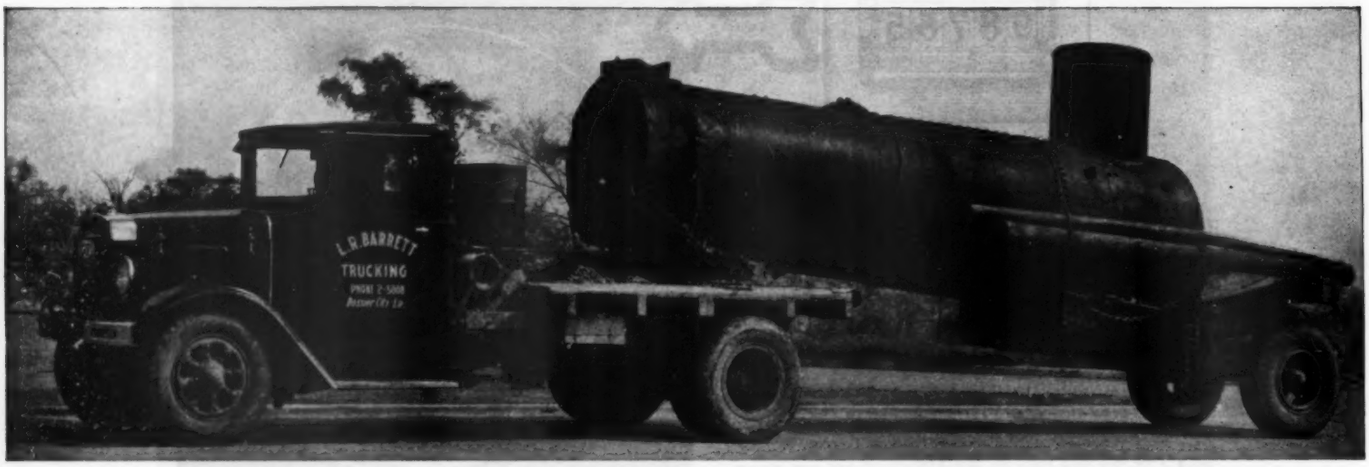
The Largest Company-Owned Truck Service Organization in the World



A 125 h.p. boiler on the move to location. This new International Heavy-Duty Truck is owned by L. R. Barrett, trucking contractor at Bossier City, La.

TRUCK buyers everywhere are investing in International Trucks and *putting the entire servicing burden on the shoulders of International Harvester.*

Some years ago International Harvester began to build a nation-wide network of branches equipped to handle every possible service need and emergency. *Today the largest, strongest, most effective Company-owned truck service organization in existence is at the call of International owners.*

Put *your* servicing problem and responsibility squarely and completely up to us. You cannot afford to maintain burdensome repair stocks, trained personnel, and costly modern equipment for repairs and overhauling. *Your job is hauling. Our job is to provide quality trucks—and to keep them on the job.*

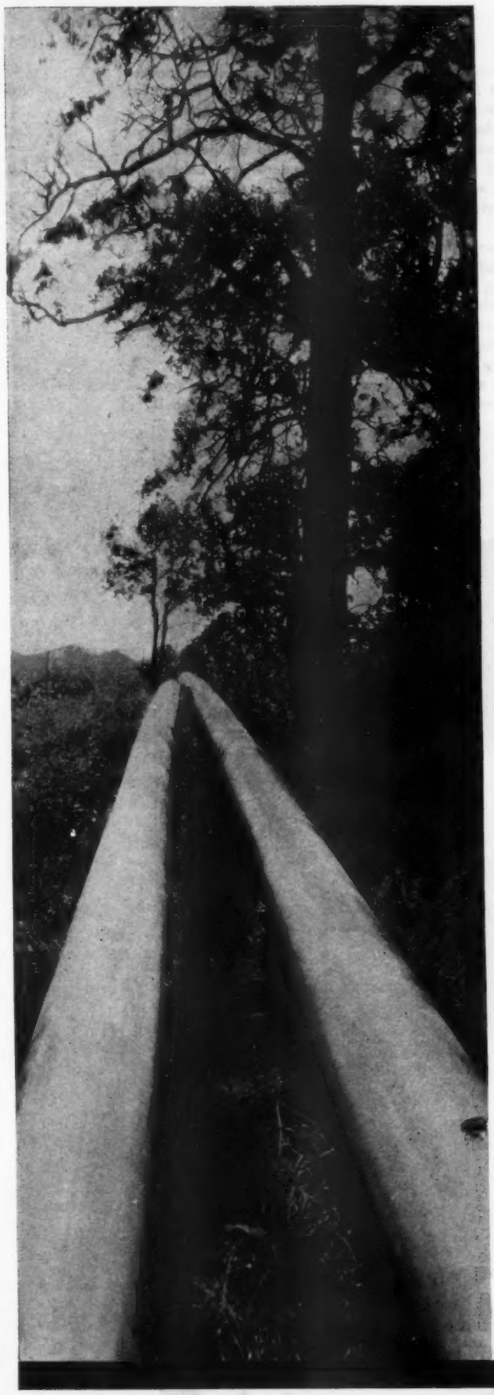
Let's maintain this logical and practical division of labor. We assure you great savings, great benefits. *We are equipped for mass production of service and that means lowest possible costs every step of the way, as tens of thousands of International owners know.*

International Service is available to buyers of trucks in every price class, the International line providing a choice of capacities ranging from ¾-ton to 5-ton. Wheelbase lengths, capacities, and body types assure each user the most efficient type of equipment. See the Internationals on view at the nearest of 183 Company-owned branches, or at an International Truck dealer's showroom.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
606 So. Michigan Ave. *(Incorporated)* Chicago, Illinois

INTERNATIONAL TRUCKS

DARLING VALVES for Pipe Lines



.. Darling Valves Around the World ..

And well they might be! Thousands of miles of Pipe Lines—through arid desert heat and tropical wilderness, in many countries and in your community—are controlled by Darling Gate Valves.

Someone who *knew* has specified each one of these valves. It may have been last year or 10 years ago. Ask the man who depends upon them for long wear and efficient operation. We will furnish the particulars; He must sing the praise.

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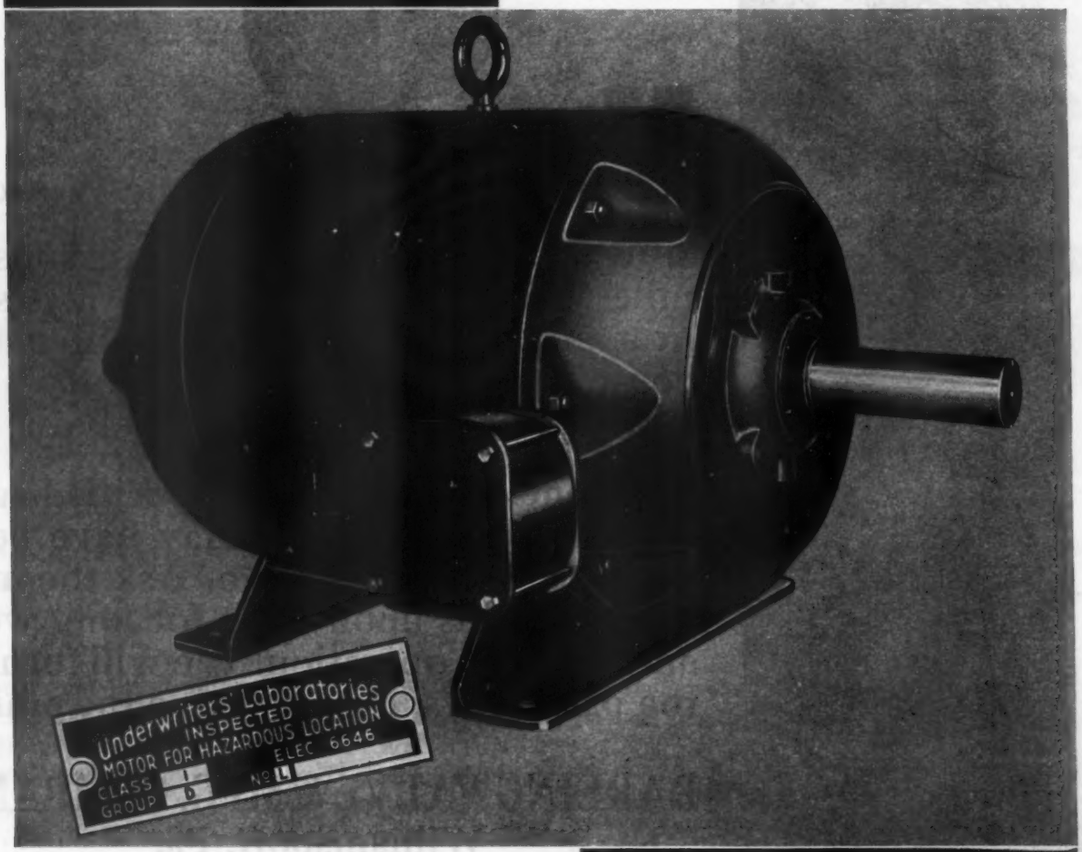
DARLING
GATE VALVES

HP Motors for Hazardous Locations

Motors which operate in locations where "flammable volatile liquids, highly flammable gases, mixtures or other highly flammable substances are manufactured, used, handled or stored in other than their original containers" must be especially designed and constructed by the manufacturer as well as tested and approved by the Underwriters' Laboratories, for that service. » » » Ordinary totally-enclosed motors are not satisfactory for such installations. These locations require totally-enclosed motors having

1. Housings strong enough to successfully withstand the explosion of flammable substances inside the motor.
2. Machined fits long enough to prevent the escape of the flames (produced by such explosions) to the surrounding atmosphere.
3. Heat capacity great enough to prevent the motor (even under abnormal operating conditions) from reaching a temperature which would ignite surrounding gases.

Wagner type HP motors are built to meet these conditions and have been approved by the Underwriters' Laboratories for Class I Group D



hazardous locations where gasoline, naphtha, alcohol, benzol and other flammable liquids are manufactured, used or handled. Hence, they are ideally suited for the petroleum industry—which has already recognized the advantages of totally-enclosed motors. » » »

WAGNER ELECTRIC CORPORATION
6400 Plymouth Ave., St. Louis, Mo.

Please send copy of Bulletin 151 on totally-enclosed fan-cooled motors, page 7 of which describes Type HP motors for hazardous locations.

Name and Position .....

Company .....

Address .....

Wagner
Electric Corporation
6400 Plymouth Avenue, Saint Louis, U. S. A.
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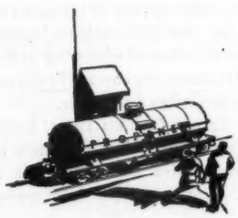
L331-6XA

1,300,000 good prospects....

Today there are one million three hundred thousand households beyond the reach of gas mains. All of these families are good prospects for the use of propane. Consumption of this gas and of butane---formerly waste products---is continually increasing. Their ever-expanding market includes, in addition to domestic heating, use as an industrial fuel, a gas enricher, and a chemical solvent.

Keeping pace with every development of the petroleum industry, General American has perfected high pressure tank cars to permit the inexpensive bulk shipment of these and other liquefied gases. These tank cars are now in general use---assisting alert manufacturers to get their share of this new business.

If you are not obtaining full advantage of your production of these gases, you certainly should investigate the possibilities of so doing. And remember, while you are investigating, that General American tank cars will haul at low cost both butane and propane (as well as 750 other commodities) to market for you.



General American engineers will gladly consult with you on any transportation problems you may have. Of course, there is not the slightest obligation on your part.

GENERAL AMERICAN
TANK CAR CORPORATION

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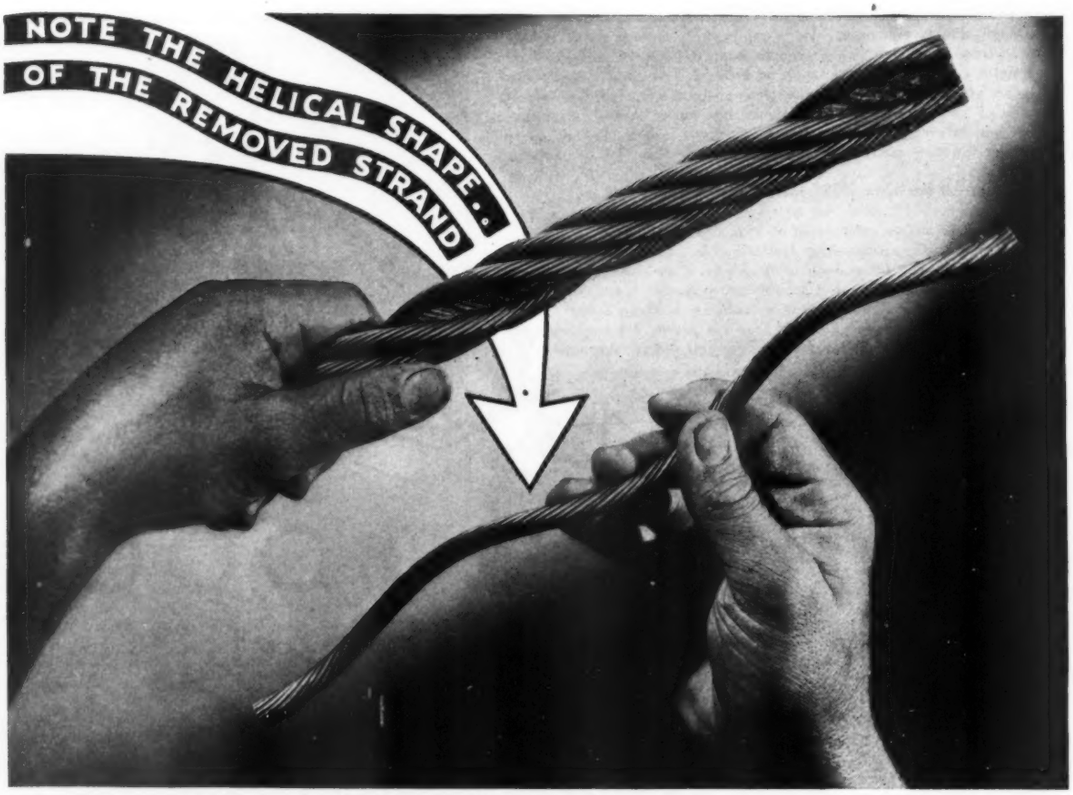

PREFORMING ADDS TO WIRE ROPE LIFE . . BY 30% TO 300%!

Preforming removes internal stress in wire rope. By preforming (preshaping) wires and strands so they are set to their exact helical form, wires and strands lie normally in place. In ordinary wire rope, which is not preformed, wires and strands are forced to wind about each other with clockspring tension — there is a constant tendency to straighten out.

Witness this internal stress in ordinary wire rope when you cut it. The ends must be firmly seized to prevent unraveling. Lay-Set is non-raveling. Note in the illustration above (which is made from an actual unretouched photograph) that the wires and strands stay in position, even though the end is unseized.

Elimination of internal stress in Lay-Set Preformed Wire Rope adds 30% to 300% *additional* service, which varies, depending upon the character and type of equipment. Rotary drilling is one of the most severe of all wire rope uses. Perfect spooling with Lay-Set Drilling Lines, quicker return of the idle block and absence of whipping at high speed are a few of the many reasons why Lay-Set Preformed Rotary Lines will give more ton-miles per dollar.

Try Lay-Set Preformed Rotary Drilling Lines, Sucker Rod, Swabbing and Tubing Lines — and compare the service with that of ordinary wire lines. You will be surprised and convinced. For complete information, address:

HAZARD WIRE ROPE COMPANY
WILKES-BARRE, PENNSYLVANIA
1112 Fair Building, Fort Worth, Texas

America's First Wire Rope—Since 1846

New York Pittsburgh Chicago Denver Fort Worth Los Angeles
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HAZARD LAY-SET
PREFORMED WIRE LINES

A typical installation—in the East Texas Field. Fig. 2019-S on Steel Skids as shown. Also Fig. 2019-W mounted on Trailer.

The Improved PORTABLE PUMPING PLANT by GASO

Crank Shaft and Worm Gear Shaft journaled in Timken Tapered Roller Bearings, adjusted for wear and sealed off from crankcase —long frame prevents overlap of piston rods—capacities increased to range from 63 bbls. per hour at 1000 lbs. pressure to 250 bbls. per hour at 300 lbs. pressure.

GASO PUMP & BURNER MFG. COMPANY

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GASO PUMPS

for every oil industry need

PLAY SAFE

In this day of deep drilling, more and more emphasis should be placed on selecting tools and equipment capable of assuring the maximum degree of safety in performance.

Use HUGHES Rock Bits & Cones

Hughes Rock Bits and Hughes Cones played an important part in making the rotary method of drilling practical throughout the oil fields of the world.

Correctly designed, manufactured from the finest chrome-nickel steel by exceptionally skilled workmen, tested in both field and laboratory—it is only natural that operators, contractors and drillers throughout the industry "play safe" by using Hughes Rock Bits and Cones.

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